THE IRON TRADE REVIEW

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LOOKING FORWARD

WITH HOPE TO THE NEXT NEW YORK MEETING.

In the Meantime, Pig Iron Prices Sag and Demand Decreases—Little New Business in Finished Lines.

Following the increased activity in pig iron last week, due to purchases by cast iron pipe makers, the market has lapsed into a condition of extreme quiet in nearly all centers, although there has been a fair amount of buying of small quantities in some sections of the country. Representatives of furnace interests in the Mahoning and Shenango valleys have discussed wages, prices and market conditions, but some difference of opinion developed, and no action was taken. Efforts of other interests to check the present tendency toward declining prices have been postponed until after the next general meeting of manufacturers to be held in New York at which it is hoped a sentiment strong enough to have an extremely beneficial effect upon the market will be developed. The United States Steel Corporation has blown in two furnaces at the Ohio works and has blown out one at South Chicago, thereby slightly increasing its active furnace capacity. It is significant that since Dec. 1, despite the remarkable decrease in demand, the Corporation has reduced its stocks of pig iron and semi-finished materials about 130,000 tons, indicating that this interest, at least, has a little more than discounted the business recession.

Pig Iron Quotations

One of the smaller furnace interests in the south has recently sold some 20,000 tons at from $12 to $12.50 Birmingham for No. 2 foundry, and other minor interests have sold at $12.50, but at present $13 seems to more nearly represent the market. The larger interests in the south are asking $13.50. In the valleys, $17 for Bessemer, $16 for basic, $15 for forge and $16 for foundry iron can be done.

No Action on Ore Prices

Although some interests which mine ore and also make steel and finished products are in favor of reaffirming ore prices of 1907, other companies, which do not have their own mines, strongly advocate a reduction in prices. As there are about 14,000,000 tons of ore on docks and in furnace yards—enough to meet the requirements of furnaces for several months after the opening of navigation—and as it is impossible to predict how strong the demand will be for ore mined this year, it does not seem probable that any action in regard to ore prices will soon be taken. Very little mining is being done this winter, and the expectation is that the production for this year will fall much below that of 1907.

Some Lower Prices

In finished lines there is very little new business. In structural material a great deal of work is being considered, but few contracts are being awarded. No reduction in prices of structural shapes is anticipated. The reduction in price of bar iron for western shipment by $4 a ton, announced two weeks ago, has been followed by similar action for eastern shipment, and the new prices are being shaded in the central west. Numerous inquiries for cast iron pipe from municipalities are pending. New Brunswick, N. J., contracted for 200 tons of cast iron pipe at $24.45 delivered. Bidders were present from as far south as Birmingham, from Massillon, O., and from many other cast iron concerns. The cast iron pipe quotation has been reduced $1 per ton and that of light rails $2 per ton.

MAJOR RHODES STRICKEN.

(Special Telegram.)

New York, Jan. 22.—Major Charles D. Rhodes, Cleveland representative of the Lackawanna Steel Co., suffered a paralytic stroke in the offices of the Lackawanna company here Monday afternoon. His left side was rendered completely helpless. His condition today is slightly improved. Major Rhodes at the organization of the Lackawanna Steel Co. was made general sales agent for the company with offices in New York. Two years ago he received the Cleveland appointment. Previous to going with the Lackawanna company he had been assistant sales agent at Chicago for the Illinois Steel Co., and later for the United States Steel Corporation. He is about 61 years old and with his wife resides in Cleveland.

LIGHT RAILS REDUCED.

(Special Telegram.)

Pittsburg, Jan. 22.—The Carnegie Steel Co. today announced a reduction of $2 per ton on base price of light rails, or $28 mill, instead of $30, on sections 25 to 45 pounds. The new prices will be 8 pounds, $36; 12 pounds, $32; 16 pounds, $30; 20 pounds, $29; 25 to 45 pounds, $28. This change is made to meet the low prices on light rails being made by re-rollers.

The Pittsburg Stock Exchange opened this morning, after being closed since Oct. 23.

INQUIRY IMPROVING.

(Special Telegram.)

New York, Jan. 22.—Rail sales announced aggregate about 2,500 tons, scattered among the leading interest.

Inquiry in many lines is improving steadily and collections are nearing the normal.

THE WEEK IN IRON CENTERS

PITTSBURG.

No Regularity in Pig Iron Prices—Market Very Quiet.

Office of THE IRON TRADE REVIEW, 521 Park Bldg., Jan. 21.

Market conditions are quiet again this week. Except in wire products, pipe, and tin plate, there has been very little new buying and all interests are looking forward to the second Gary dinner in New York Jan. 29, at which time the whole situation will be given a thorough going over for the second time since the beginning of the slump last October. Prices have been maintained all along the line since the recent readjustments in sheets, tin plate and wire, and an agreement to maintain shapes, steel bars and plates is understood. The only points upon which there is no unanimity are bar iron and pig iron prices. There is a range from 50 cents to $2 on bar iron prices, all below the recently fixed official price of 1.50c base Pittsburg for Pittsburg distribution and 1.40c base Pittsburg for western shipment from western mills. There is an easy range of $1 per ton on all grades of northern pig iron and several furnaces which recently agreed to hold prices are shading, while others who refused to enter an agreement are openly quoting $1 to $1.50 below the agreement. Although two attempts have been made to get furnace interests together since the first Gary dinner, both of them have been failures, and this question will come up for discussion at the second dinner in New York.

There is a range of $5 to $6 in the price of light rails as quoted by rerollers and manufacturers from billets. This question will come up for adjustment during the week. The volume of plate, shape and steel bar business is very light. There is a better feeling as to the market on semi-finished steel, and several sales of sheet bars, axle blooms, and slabs are reported, all at the full price. The spread between steel making pig iron and billets is receiving attention, but, as far as can be learned, there has been no shading of prices at any point on semi-finished material.

Pig Iron.—The pig iron market is split wide open and there is no pretense of maintaining any fixed market price. A majority of the valley interests are holding at $18 on Bessemer, $16.50 to $17 on No. 2 foundry and $16 on basic, but all of these prices have been shaded so generally that they are from 50 cents to $1 above the actual market at which sales have been made. We quote the market at $17 on Bessemer, $16 on No. 2 northern foundry, $16 on basic, and $15 for northern forge iron, all valley prices. One sale of No. 2 is noted at $15.85, furnace. The valley interests have not reduced wages of furnace men, and the general proposition will be taken up after a more general discussion is had in New York on the occasion of the second Gary dinner. In the face of present conditions, valley interests report sales of Bessemer at $17.25, and one 1,000-ton lot of basic at $17, valley.

Southern furnace interests, who held a meeting in New York last week failed to get together. As a matter of fact, it is reported they were further apart after the meeting than before. The $12.50 quotation on No. 2 southern, however, has been withdrawn, and $13 Birmingham is the lowest quotation we find. The big interests are still holding at $13.50, Birmingham, but not moving any iron.

While the large interests are firm in their prediction that there will be no change in ore prices, the sentiment is not unanimous as there are several independent interests who are not tied up by agreement and during the past two months have shown a disposition to act regardless of conference agreements. The Carnegie Steel Co., on Thursday of this week will put two more furnaces in blast, one at Youngstown and one at Clairton.

We quote the following prices on pig iron for prompt or first quarter shipment:

Bessemer, Valley	$17.00 to 18.00
Bessemer, Pittsburg	17.90 to 18.90
No. 1 Foundry, Pittsburg	17.40 to 17.90
No. 2 Foundry, Pittsburg	16.90 to 17.40
Gray Forge, Pittsburg	15.90 to 16.40
Basic, Valley	16.00 to 17.00
Basic, Pittsburg	16.90 to 17.90

Ferro - Manganese.—In sympathy with other lines that have shown a sagging tendency, alloys are this week quoted below last week's figures and on large lots, ferro-manganese, foreign 80 per cent, can be secured between $48 and $49 delivered Pittsburg for either prompt or forward shipment. The transactions as far as can be learned are confined to carload lots at prices $49.50 to $50.

Imported 50 per cent ferro-silicon is quoted $93 Pittsburg on forward deliveries; domestic 12 per cent, $34; 11 per cent, $33; 10 per cent, $32. The lower grades of imported ferro-silicon are quoted 50 cents lower. These quotations are applicable to Pittsburg territory.

Plates.—The plate business is at a standstill, there being no new business, and, aside from the steel car companies and lake ship yards, consumers are not specifying at all freely, although there have been a few releases of previous suspensions. There is absolutely no talk of new car building, and current reports are to the effect that six weeks' continuous work will see the big car companies idle. To demonstrate the idle car capacity of railroads, we have a report that the Pennsylvania lines at the end of last week had 76,000 idle cars, and that construction work was under way on new sidings to take care of this unemployed equipment. Prices are being maintained by Pittsburg mills, but eastern manufacturers are reported to be shading plates $2 to $3 per ton, and securing but very little business at that. Reports from New York are that prices have been reaffirmed all along the line. We continue to quote:

Tank plate, ¼ inch thick, 6¼ to 100 inch, 1.70c f. o. b. mill Pittsburg. Extras are as follows per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary fire-box steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive fire-box steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1.00c. Gages under ¼-inch to and including 3/16-inch plate on thin edges, 0.10c; under 3/16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—Improvement is noted as far as new business is concerned on black and galvanized roofing sheets. This demand is seasonable in anticipation of spring and summer business. Jobbers are placing a little quick order business to balance stocks, but from tonnage standpoint these stocks are not being maintained at their usual average. We hear of no shading on the recently established new price, and continue to quote:

Black steel sheets, one pass, cold rolled: Nos. 11-12, 2.10c; Nos. 13-14, 2.15c; Nos.

15-16, 2.20c; Nos. 17-21, 2.25c; Nos. 22-24, 2.30c; Nos. 25-26, 2.35c; No. 27, 2.40c; No. 28, 2.50c; No. 29, 2.60c; No. 30, 2.70c. Galvanized: Nos. 10-11, 2.45c; Nos. 12-14, 2.55c; Nos. 15-16, 2.65c; Nos. 17-21, 2.80c; Nos. 22-24, 2.95c; Nos. 25-26, 3.15c; No. 27, 3.35c; No. 28, 3.55c; No. 29, 3.70c; No. 30, 3.95c;. Blue annealed; No. 11-12, 1.85c; Nos. 13-14, 1.90c; Nos. 15-16, 2c. Corrugated roofing, $1.75 per square for No. 28 painted, 2½-inch corrugation, and $3.10 per square on galvanized roofing, 2½-inch corrugation, No. 28.

Tin Plate.—The volume of new business on tin plate has increased very materially since the new price of $3.70 per base box was established, and each week since that time has seen an increase in the number of mills in operation. The new plant of the American Tin Can Co. in Tubetown near New Castle is rapidly nearing completion. We quote as follows:

Coke tin plate, 100-pound basis, 14 x 20, 3.70 f. o. b. mill, Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—No new standard rail business has been placed during the past week, and although one of the eastern trunk lines has opened desultory negotiations, no exact tonnages have been mentioned, and the only indication as to tonnage to be placed, comes from a remark of the president of a company, who says that the longer he waits the more rails he will have to buy. A total of 21 inquiries on standard sections aggregated but 7,500 tons. The total sales of light rails during the week reached 550 tons. During the past week, a half dozen coal operators expressed a willingness to contract for their 1908 supply, and the inquiry aggregated 3,000 tons. There is also a 2,000-ton inquiry for export. No. 3 light rail mill at the Edgar Thomson plant which has been down since Dec. 1, will start some time this week, a question of billet supply being involved. When the mill shut down, there was a stock of 6,000 tons of light rails on hand. This has been reduced to 2,000 tons, not well assorted. Standard spikes are now quoted $1.85 and hand spikes $2 to $2.05. On the present section specification we quote as follows:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8 pound, $36; 12-pound, $32; 16-pound, $30; 20-pound, $29; 25 to 45-pound, $28; anglet splice bars for standard sections, $1.65; standard spikes, $1.85 Pittsburg; hand spikes, $2 to $2.05 Pittsburg.

Steel.—The steel plant of the Youngstown Sheet & Tube Co. after being down last week, is again in operation this week. The Republic Iron & Steel Co. plant at Youngstown is down again this week. The Ohio plant of the Carnegie Steel Co., which was scheduled to go on last Thursday, was not started until Monday of this week, the delay being caused by a broken rocker arm on the blooming mill engine. Prices on semi-finished steel have not changed, although the wide spread between steel making iron and Bessemer billets is causing considerable talk. We note the sale of 1,000 tons of prompt delivery sheet bars at $29 Pittsburg, and a 2,000 ton inquiry for axle blooms for a western axle forge as well as a 500-ton inquiry on 4 x 4 billets for a western bolt manufacturer. Sheet bar specifications are coming in in good shape both from the American Sheet & Tin Plate Co. and independent interests. The increase in these specifications caused the billet and sheet bar mill at the Ohio plant to be started. The billet inquiries are more numerous, but do not involve large tonnages. We quote Bessemer open-hearth billets $28 Pittsburg and sheet bars $29.

Hoops and Bands.—The hoop business is more active than is usual at this time of the year, being about the only line that is holding up to full capacity. The slack cooperage interests are specifying freely on old contracts, and the volume of current business is above the average. Prices are being maintained as follows:

Hoops in carload lots, 2c; in less than carload lots, 2.10c; bands, 1.60c; base half extras as per standard steel.

Merchant Bars.—The steel bar business is inactive, there being little or no specifications against old contracts, and no new business. Although the trade has been expecting a readjustment of prices, manufacturers have been holding firm at the 1.60c Pittsburg base. Bar iron prices are shaky and the recently established 1.50c base Pittsburg for Pittsburg distribution, is being shaded $2 per ton on quotations involving fair tonnages. The 1.40c base Pittsburg for western shipment from western mills is being shaded 50 cents to $1 per ton. The reduction in price brought out a small tonnage within a few days following the change, but since that time the slump is as bad as before the previous official reduction. The only trade that is holding up at all, as far as steel bars are concerned, is the re-inforced concrete construction business. It is estimated that over 60 per cent of the total bar rollings at the present time are for this trade.

Common iron bars, 1.40c to 1.45c Pittsburg in carload lots and over, 1.50c to 1.55c in less than carloads; 1.37½ to 1.40c base Pittsburg plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.60c net for future deliveries; 1.85c to 1.95c out of stock; plow and cultivator, 1.60c net; channels, angles, zees, tees, under three inches, 1.70c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting, 50 per cent in carloads, and 45 per cent in less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. Planished and machine straightened tire steel is 1.80c base. Iron finished tire under 1½ by 1½ inches, 1.75c; iron finished tire, 1½ by ½ inches and over, 1.60c base. All tire subject to ½ extra on the steel card.

Structural Material.—Mill shipments are light and practically no new business is being received. Prices are being maintained, however, on shapes, although eastern plate makers are reported as shading $2 per ton. Nothing definite has been done in regard to the new P. & L. E. bridge over the Ohio near Beaver. The only regular inquiry coming along seems to be on railroad grade crossing work and this in itself is but a small factor. Fabricating companies are operating at a very low point. We quote mill prices as follows:

Beams and channels, 15-inch and under, 1.70c; over 15 inches, 1.90c; zees, 1.70c; tees, 1.75c; angles from three to six inches inclusive, 1.70c; over six inches, 1.80c; universal and sheared plates, 6¼ inches and wider, 1.80c base.

Merchant Pipe.—Carload lot orders are considered fair business just now, but the number of these being placed has in the aggregate amounted to a goodly tonnage for the mills. This business has been for the most part, running in the small sizes and there are no line pipe inquiries. Rumors of a contemplated reduction in price of steel pipe are firmly denied by all manufacturers. No action has been taken on prices. Jobbers and consumers who have asked for a guarantee have been denied. The new business is all for quick shipment, as jobbers are running along on small stocks and are experiencing dif-

ficulty in keeping them balanced at the low point. We quote the following official discounts on steel pipe to consumers:

	—Steel— Black.	Galv.
⅛ and ¼ inch	65	49
⅜ inch	67	53
½ inch	69	57
¾ to 6 inches	73	63
7 to 12 inches	70	55
EXTRA STRONG PLAIN ENDS.		
⅛ to ⅜ inch	58	46
¼ to ¾ inches	65	53
4½ to 8 inches	61	49
DOUBLE EXTRA STRONG PLAIN ENDS.		
¼ to 8 inches	54	43

Wire Products.—The reaffirmation of official prices 10 days ago is strictly adhered to all along the line. While the volume of business is not normal for this time of the year, it is good in comparison with other lines, and there has been a brisk movement in barb wire. Jobbers' stocks are being replenished and there is a heavy quick shipment business. We continue to quote:

Wire nails, jobbers' carload lots, $2.05c; retailer's carload lots, $2.10; less than carloads, $2.15c; painted barb wire, $2.20 for jobbers in carloads; retailers in carloads, $2.25; and less than carload, $2.35; with 30c for galvanizing; plain wire, 1.90c for jobbers, and 1.95c by carload.

Chain and Wire Rods.—Although there is no business to speak of in this line, manufacturers have been firm in asking $37 Pittsburg for open-hearth and $36 Bessemer on chain and wire rods.

Coke.—The coke market is pretty thoroughly demoralized and each week brings out a new low point. Foundry coke prices are firmer than furnace, but there is very little new business being offered. Operators in the region are anxious to resume and furnace coke of standard quality has been sold during the week at $1.75 at the ovens for spot shipment. There is a wide range in contract quotations, and although as far as can be learned nobody has offered any big tonnage, quotations range from $1.90 to $2.25. Producers of some of the best known high grade cokes have refused to sell at less than $2.25 for the year, but others having good coke are willing to sell from $1.90 to $2.10, depending upon the recognized quality of the coke.

Spot foundry coke is quoted $2.50 at the ovens and contract coke for the year $2.50 to $2.60. The production for the week of Jan. 11 increased 20,000 tons over the week ending Jan. 4. There are over 2,000 more ovens in blast than there were at the first of the year.

Old Material.—After a slight improvement in the demand for steel scrap, noted simultaneously with the resumption of several steel mills, allied with the tin plate industry, the scrap market has gone back again and, aside from a few inquiries of 100-ton lots, there is nothing being done. Although several of the large users of melting scrap are in operation, they have instructed dealers not to resume shipments of material already under contract, as stocks are sufficient to keep them going for a considerable time. In the absence of any real market, we quote the following nominal prices, gross tons, delivered in the Pittsburg district:

Heavy melting scrap, $13 to $13.50; rerolling rails, $13.50 to $14; bundled sheet scrap, $10 to $10.50; iron axles, $18 to $19; old iron rails, $17 to $18; No. 1 wrought scrap, $13.50 to $14; old car wheels, $17 to $17.50; low phosphorus scrap, $16 to $16.50; machine shop turnings, $7.50 to $8; cast borings, $6 to $7; No. 1 cast scrap, $14.50 to $15.

CHICAGO.

Pig Iron Sold at Low Prices—Finished Material Very Dull.

Office of THE IRON TRADE REVIEW,
1362 Monadnock Block, Jan. 21.

Specifications and new tonnage on nearly all lines of finished material are slow in developing. The structural and universal plate mills of the Illinois Steel Co. at South Chicago are shut down because of this fact, and unless there is a sharp rally it may be necessary at an early date to suspend operations in other departments of this plant. Prices have been marked down on light rails, and spikes and bolts also have been dropped $1 a ton. There is very little demand for either of these materials. Close to 10,000 tons of cast iron pipe are under negotiation, but owing to the weakness of pig iron it has been deemed advisable to reduce prices $1 a ton. Figures are also being taken on a round tonnage of fabricated steel, but the developments beyond this stage are very uncertain because of financial considerations. The principal transaction of the week was the reservation of a very large tonnage of plates and shapes by a local jobber. Pig iron continues its erratic way. Efforts to effect sales at the nominal prices of furnaces have met with no greater success than before, the result largely of a raid upon the market by interests not associated in any policy, who offered exceedingly attractive prices and booked a very large tonnage. Bar iron shows more animation, and it is hoped to start up soon the East Chicago and Moline mills. Scrap is higher in price, but without much consumptive demand.

Pig Iron.—A slightly better tone permeates the local market, which is emphasized principally in a better inquiry for first quarter iron and a stronger disposition to cover for that delivery. It is not yet possible to accurately quote the market because of the divers schedules in existence. The nominal price for southern No. 2 is $13.50 Birmingham, and for northern No. 2, $18 Chicago. But there has been considerable "gum-shoe" selling in this market since the first of the year, and these prices have existed only on paper. It is widely stated that the Woodward Iron Co. disposed of not less than 20,000 tons to consumers in and around this territory within the last two weeks at prices ranging from $12 to $12.50 Birmingham for No. 2—most of it at the lower price—while nearly an equal amount was sold by other interests at $13 Birmingham. A considerable tonnage of northern iron also has been sold at prices ranging from $17.50 to $18 Chicago for No. 2. In both instances it is only just to add that it was non-competitive iron and for reasonably early deliveries. The furnaces selected their customers, made them the offer, and the deal was closed without any further prices being asked. In fact, there was no effort to meet this competition, the other sellers considering it to be the outcome of conditions peculiar to the interests creating it which would disappear as soon as these conditions ceased to exist. The market was left in a badly demoralized state, however, and it is impossible now to interest any melter at a higher price than $13 for southern No. 2 and $18 for northern No. 2. Jackson county and southern silveries are lower, and we have revised our quotations on same. Lake Superior charcoal has also declined, and it is now quoted from $22 to $22.50 Chicago. Several sales of basic iron have been made recently by a local furnace at prices said to be better than either the valley or Alabama quotations. We quote as follows:

Lake Superior Charcoal	$22.00 to 22.50
Northern Foundry No. 1	18.50 to 19.00
Northern Foundry No. 2	18.00 to 18.50
Northern Foundry No. 3	17.50 to 18.00
Southern Foundry No. 1	17.85 to 18.35
Southern Foundry No. 2	17.35 to 17.85
Southern Foundry No. 3	16.85 to 17.35
Southern Foundry No. 4	16.35 to 16.85
Southern No. 1 Soft	17.85 to 18.35
Southern No. 2 Soft	17.35 to 17.85
Southern Gray Forge	15.85 to 16.35
Southern Mottled	15.60 to 16.10
Southern Silveries, 4 per cent Silicon	18.85 to 19.35
Southern Silveries, 5 per cent Silicon	19.35 to 19.85
Southern Silveries, 6 per cent Silicon	20.35 to 20.85
Jackson Co. Silveries, 6 per cent	22.40 to 22.90
Jackson Co. Silveries, 8 per cent	24.40 to 24.90
Jackson Co. Silveries, 10 per cent	26.40 to 26.90
Malleable Bessemer	18.50 to 19.00
Standard Bessemer	20.40 to 20.90
Chicago Basic	18.50 to 19.00
Alabama Basic	18.35 to 18.85

Billets and Rods.—There is a very firm market on wire rods, reports to the contrary notwithstanding. Local quotations are unchanged on the basis of $35 Pittsburg for Bessemer, $36 for basic wire rods and $37 for chain rods. Billets are also without change, rolling being held at $31 Chicago, and forging at $33.

Merchant Bars.—The recent reduction in price of bar iron has not yet developed a volume of business sufficient to operate western plants to their full capacity. It has justified itself, however, in an increased inquiry and a general tendency among consumers to at least discuss future requirements. The outlook for business seems brighter, and with an improvement already noticeable in scrap quotations, manufacturers of the finished product look for an early stiffening of the market with a probable advance in prices. Consumers of steel bars are specifying a little more freely than heretofore, the improvement being especially noticeable in the removal of the embargo on contract shipments. Shafting remains irregular, but there is no wide range of prices. We quote, for Chicago delivery in carload lots, as follows:

Bar iron, 1.55c to 1.58c; soft steel bars and bands, 1.78c, half extras; soft steel angles, less than 3 x 3, 1.88c; hoops, 2.18c base, full extras; planished or smooth finished tire steel, 1.98c; iron finish, up to 1½ x ½ inch, 1.93c base; iron finish, 1½ to 1½ inch and larger, 1.78c base; channel for solid rubber tire, ¾ to 1 inch, 2.28c, and 1⅛ inch and larger, 2.18c; smooth finished machinery steel, 2.18c; flat sleigh shoe, 1.83c; concave and convex sleigh shoe, 1.93c; cutter shoe, 2.36⅛c; toe calk steel, 2.33c; railway spring, 1.98c; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 54 per cent off the list for carload lots, and 48 per cent off for less than carload lots, base territory delivery. On iron and steel bars from local stocks, we quote as follows: Bar iron, 2.10c, full extras; soft steel bars, $2 per 100 pounds base, plus half extras; soft steel hoops, 2.40c, full extras.

Plates.—The universal plate mill of the Illinois Steel Co. continues idle, and it is possible that the sheared plate mill at South Chicago will have to shut down at an early date unless there is a sharp improvement in the volume of business. It has been impossible to develop anything like a satisfactory tonnage despite energetic efforts to do so. Store trade is somewhat better, though not so great as to be the cause of much congratulation. Our prices are without change, as follows:

Plates, ¼ inch and heavier, 6¼ to 100 inches wide, either universal or sheared, 1.70c Pittsburg base. For extras see Pittsburg report. Freight rate to Chicago, 18c per 100 pounds for carload lots, and 21c for less than carload lots. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼ inch and heavier, up to 72 inches wide, 2.20c; 3/16 inch up to and including 60 inches wide, 2.30c; 3/16 inch, 72 inches wide, 2.55c; No. 8 up to 60 inches wide, 2.40c. Flange steel, 25c extra; heads, 25c extra.

Sheets.—The only improvement noticeable in sheets is contained in a better demand for roofing material from southwestern points. There was a sharp suspension of orders in this material from the locality mentioned during the recent financial disturbance, but the old condition of affairs is gradually returning. Galvanized and box annealed sheets are moving in about the same volume as before. We quote mill prices as follows:

Blue annealed, No. 10 and heavier, 1.85c Pittsburg; No. 28, 2.50c Pittsburg. Galvanized sheets, No. 28, 3.55c Pittsburg. Freight to Chicago, 18c per 100 pounds for carload lots and 21c for less than carload lots. Jobbers' prices on carload lots and less from store are as follows, Chicago delivery:

No. 10, 2.20c to 2.25c; No. 12, 2.25c to 2.30c; No. 14, 2.30c to 2.35c; No. 16, 2.40c to 2.50c; Nos. 18-20, 2.60c to 2.65c; Nos. 22-24, 2.65c to 2.70c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.95c; No. 30, 3.25c. Galvanized sheets, Nos. 10 to 16, 3.00c to 3.15c; Nos. 18 to 20, 3.15c to 3.25c; Nos. 22 to 24, 3.30c to 3.35c; No. 26, 3.50c to 3.55c; No. 27, 3.70c to 3.75c; No. 28, 3.90c to 4.00c; No. 30, 4.40c to 4.50c.

Structural Material.—To set at rest the frequent reports that a reduction in prices of structural steel is imminent, it was stated by the president of a large fabricating interest at a recent meeting of sales managers held in Pittsburg that there positively would be no change in prices at this time. A large number of projects are held in abeyance in anticipation of a probable decline in this material, and to reassure the promoters of these enterprises the sales managers were asked to give this statement the widest dissemination in the most positive terms. Specifications on mills continue light, and the plant of the Illinois Steel Co. at South Chicago remains idle. The company has a good stock of material on hand, however, and can give immediate shipment on current orders. Several new projects have come into the market during the past week, among them being the Leary building, Seattle, 1,000 tons; Hotel Rainier, Seattle, 1,000 tons; two buildings in San Francisco, involving 600 tons apiece; and a 900-ton structure in Los Angeles. It is also reported that the Chicago city authorities will advertise shortly for bids for the construction of the Orleans street bridge, 2,000 tons, and that efforts are being made for an early commencement of the new city hall. Our prices are without change, as follows:

Beams and channels, 3 to 15 inches inclusive, 1.70c Pittsburg. For extras see Pittsburg report. Freight rate from Pittsburg to Chicago, 18c per 100 pounds for carload lots, and 21c per 100 pounds for less than carload lots. Quotations from store are as follows:

All angles, 3 inches and larger, including 6 inches, $2.05 per 100 pounds; angles, over 6 inches, $2.15 per 100 pounds base; beams, 3 to 15 inches inclusive, $2.05 per 100 pounds base; channels 3 inches and larger, $2.05 per 100 pounds base. Less than carload lots are $1 a ton higher than foregoing prices.

Rails and Track Supplies.—As was anticipated owing to the light nature of the business being taken and because of the frequent cutting in prices, the differentials in the price of light rails have been withdrawn, and the entire range of sizes is now quoted from $28 to $30, f. o. b. mill, with the very good prospect that on a round tonnage the minimum price could be obtained without difficulty. Spikes and bolts have also softened to the extent of $1 a ton. Nothing new has developed in the heavy rail situation. The local mill is none too plentifully supplied with specifications and is pressing the railroads for further orders. We quote as follows:

Bessemer rails, $28 to $30; less than 500-ton lots, $30; open-hearth rails, $29; light rails, $28 to $30. Track supplies, f. o. b. Joliet: Angle bars, 1.65c; spikes, 1.85c to 1.95c; bolts with square nuts, 2.35c to 2.45c; with hexagon nuts, 2.50c. Small railroad and square boat spikes, 2c base f. o. b. Pittsburg.

Merchant Pipe and Boiler Tubes.—The tubular situation is without material change. Stores continue to offer a discount of 72 per cent freely on steel pipe, though mill discounts continue to be 74 and 5 off.

We quote mill discounts, Chicago delivery, carload lots, as follows: On

steel pipe, jobbers are allowed a concession of one point and 5 per cent additional from the schedule in force:

	—Steel— Black.	Galv.
¼ to 6 inches, inclusive	72.0	61.2
BOILER TUBES.		
	Steel.	Iron.
2¼ to 5 inches, inclusive	62.2	49.2

Mill quotations on iron pipe are from four to five points higher than above. A concession of one point from the following quotations is allowed by Chicago jobbers on carload orders for shipment from local warehouse stocks. We quote for less than carload lots as follows:

MERCHANT PIPE.	Black.	Galv.
⅛ to ¼ inch	61	45
⅜ inch	63	49
½ inch	65	53
¾ to 6 inches	69	59
7 to 12 inches	65	50

Minimum prices for wrought iron pipe, carload lots or greater, from Chicago stocks are as follows: One-eighth inch to ¼ inch, 55; ⅜ inch, 57; ½ inch, 59; ¾ inch to 6 inches, 64; 7 inches to 12 inches, 59. Boiler tubes from store are unchanged at 60 off for steel, 47½ for iron, and 47½ for seamless, base sizes, 2⅛ to 5 inches.

Cast Iron Pipe.—Inquiries from municipalities for water and gas pipe show a healthy increase. St. Paul is asking prices on 2,000 tons; Minneapolis on 3,000 tons, and Minot, N. D., 1,500 tons. A large tonnage from San Francisco is held in abeyance pending the flotation of bonds. Several other smaller municipalities are also figuring on various lots. We have lowered our prices $1 a ton in sympathy with the softness in pig iron. We quote: Four-inch pipe, $31; 6 to 12-inch, $30; larger sizes, $29; gas pipe, $1 a ton higher.

Wire Products.—Manufacturers and jobbers report that the spring trade is opening in very satisfactory volume. The demand for barb wire from southwestern points is especially promising. A good season is anticipated as stocks are low everywhere. The recent reaffirmation of prices has done much to strengthen the situation. We quote to jobbers, Chicago delivery, as follows:

Wire nails, $2.23; painted barb wire, $2.38; galvanized barb wire, $2.68; smooth annealed wire, $2.08; smooth galvanized wire, $2.38; polished staples, $2.23; galvanized staples, $2.63. Carload lots to retailers, 5 cents higher; less than carload lots, 15 cents higher.

Coke.—The local market is without appreciable change. Demurrage coke is occasionally offered at bargain prices, but otherwise the market is holding its own. We quote for standard Connellsville furnace coke, $2 to $2.10; for foundry coke of standard Connellsville grade, $2.75 to $2.90, with the minimum price most frequently noted.

Old Material.—The heavy weather of the past week, combined with a general feeling of optimism in other lines, has been sufficient to slightly lift the scrap market from the inertia in which it had fallen. Values have responded to the awakened interest, in most cases resulting in a raise of from 25 cents to 50 cents a ton, and in two instances—old iron rails and railroad wrought—of an increase of $1 a ton. It may be said, as a general thing, that all puddling scrap is in better demand and proportionately stronger in price, but basic, rerolling and cupola stock are without appreciable change other than a purely sentimental one. It cannot be authoritatively learned that the B. & O. list mentioned last week, containing 2,500 tons of old steel rails, has been disposed of—reports say that it has not—but the price at which this material was sold will very greatly affect local quotations on rerolling stock in view of the increased interest being shown in the scrap market generally. The C., M. & St. P. has a new list out. It contains 2,100 tons, of which 700 tons are steel rails, 4 feet and over, and 300 tons are old iron rails. We have revised our prices, and quote gross tons in the first paragraph, as follows:

Old Car Wheels	$19.00 to 19.50
Old Iron Rails	16.00 to 16.50
Re-rolling Rails (3 ft. and over)	12.50 to 13.00
Old Steel Rails (3 ft. and under)	12.25 to 12.75
Light Section Relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying Rails, subject to inspection	19.00 to 19.50
Frogs, Switches and Guards	11.50 to 12.00
Heavy Melting Steel	11.00 to 11.50

We quote, net tons, as follows:

No. 1 R. R. Wrought	$12.00 to 12.50
No. 2 R. R. Wrought	11.00 to 11.50
Knuckles, Couplers and Springs	10.00 to 10.50
Shafting	14.00 to 14.50
Iron Car Axles	16.00 to 16.50
Steel Car Axles	15.00 to 15.50
Dealers' Forge No. 1	9.00 to 9.50
Pipes and Flues	8.50 to 9.00
No. 1 Cast, 150 lbs. and less	12.75 to 13.25
No. 1 Mill	7.50 to 8.00
Mixed Busheling (Nos. 1 and 2)	7.50 to 8.00
Country Sheet	4.00 to 4.50
No. 1 Boiler Cut	7.50 to 8.00
Boiler Punchings	10.00 to 10.50
Cast Borings	5.25 to 5.75
Mixed Borings, etc.	5.25 to 5.75
Machine Shop Turnings	7.00 to 7.50
Railroad Malleable	10.25 to 10.75
Agricultural Malleable	9.25 to 9.75
Stove Plate and Light Cast Scrap	11.50 to 12.00
Old Iron Splice Bars	14.00 to 14.50

CLEVELAND.

No Action in Ore Prices Likely for Sometime—Pig Iron Sales.

Office of THE IRON TRADE REVIEW,
Browning Building, Jan. 21.

Iron Ore.—In spite of reports to the contrary, we are able to state on the highest authority that no action has been taken in regard to ore prices for this year and that none is likely to be taken at an early date. There are still on docks about 7,000,000 tons of ore, and it is estimated that about an equal amount is stored in furnace yards. Nearly all furnace interests in November, 1906, purchased enough ore for use in their blast furnaces up to May, 1908, and on account of the going out of blast of many stacks since Nov. 1, many companies will have enough ore to meet their requirements for several months after the first of May. Ore interests are unitedly and positively opposed to making any reduction on ore already sold, and believe that no good could be accomplished, and much harm might be done, by announcing ore prices for this year until conditions become more settled. No one can now foretell with any degree of certainty whether the demand for ore to be shipped this year from the mines will be heavy or not. In some quarters there is undoubtedly a sentiment in favor of reaffirming present prices, but this sentiment is not unanimous among the ore producers, and there is a very strong feeling on the part of independent furnace interests that lower prices should prevail unless the decline of pig iron prices can be prevented. Owing to the inability of furnace interests to agree upon any plan of maintaining pig iron prices, the position of furnace interests favoring lower prices on ore has been strengthened. Some furnaces with ore to their credit on contract, due to the season's shortages, are notifying selling agents to postpone delivery rather than cancel the tonnage owing them, tending to show an expectation of reaffirmation of prices.

Pig Iron.—Contracting for their requirements, principally for the first quarter, foundrymen in this territory have maintained a mild buying movement in foundry iron. In some respects the week shows improvement over the preceding one. Tonnages closed include 1,000 tons of Northern No. 2 to a Massillon, O., melter for first half delivery at a price reported to be about $16 valley, 2,000 tons of Southern No. 2 foundry to a Cleveland manufacturer at a price manifestly better than $13 Birmingham and others of less amounts. There are plenty of good inquiries among the larger ones being 1,000 and 2,000 tons respectively for first quarter and first half delivery by Ohio foundrymen. Local iron continues to be held at $17.24 delivered Cleveland, but the price of $17 furnace for outside business has been shaded in particular instances. Reports of $16 valley furnace quotations, or corresponding figures outside that district, are not so num-

erous. The southern situation presents its share of incongruities. It is fairly well established that some of the smaller interests have been taking business at $12.50 Birmingham, a small tonnage to an Ohio melter for prompt delivery having been made in the week at this figure. The larger companies, however, which are holding firm at $13.50, report to be taking some business at this figure, and one small interest which has been selling at $13 has announced an advance to $13.50 Birmingham. For Cleveland, delivery for the first quarter, we quote as follows, charcoal iron being based on freight rates by water.

Bessemer	$18.50 to 19.40
No. 1 Foundry	17.75 to 18.25
No. 2 Foundry	17.25 to 17.75
No. 3 Foundry	16.75 to 17.25
No. 2 Southern	17.35 to 18.35
Gray Forge	16.75 to 17.25
Lake Superior Charcoal	23.50 to 24.00

Coke.—In accordance with the somewhat greater activity noted in foundry iron, interest in foundry coke shows some increase. Some fair sized contracts are being closed with foundrymen and inquiry is good. The highest held grades of foundry coke have been reduced from $3 to $2.75, and on contract we quote foundry coke at from $2.50 to $2.75 ovens, and furnace coke at $2 ovens. Prompt prices are lower.

Finished Material.—The week reflects a gradual approach of finished lines to a better position. There have been some good sized specifications on contracts received; bridge and boiler companies drawing upon their plate tonnages and implement manufacturers displaying more activity in taking bars for their requirements. There is a fair amount of new business moving. We note the sale of 500 tons of standard rail sections for manufacturing purposes. In light rails, coal companies are inquiring for some tonnage and there is other prospective business. Several transactions are pending in structural lines and a contract closed in the week has been for 800 tons for mill construction purposes. Some tonnage of bar iron is being taken at the reduced prices, but the mills of the Empire Rolling Mill Co. and the Union Rolling Mill Co., which resumed Jan. 20 after four weeks' suspension, have not sufficient business to insure their continued operation. Jobbers' business shows improvement in some lines.

Old Material.—More movement in old material is perceptible, some phases of which appear to be considerably speculative. Turnings in quantity are being purchased and laid down for possible rise by dealers. Some grades of material incline upward in price but quotations are generally nominal. Little if any movement of old material toward mills and foundries is noted although the volume of inquiries has increased over that of the past two or three weeks. We quote the following prices, largely nominal, f. o. b. Cleveland, gross tons:

Old iron rails	16.25 to 17.25
Old steel rails (re-rolling)	14.00 to 14.50
Old steel rails (under 6 feet)	12.25 to 13.25
Old car wheels	16.25 to 17.25
Old steel boiler plate	9.25 to 10.25
Steel axles	14.50 to 15.00
Malleable iron (railroad)	12.25 to 13.25
Malleable iron (agricultural)	10.25 to 11.25
Heavy steel	11.25 to 12.25
Country mixed steel	10.75 to 11.75
Low phosphorus	14.75 to 15.50

We quote net tons as follows:

No. 1 R. R. Wrought	11.75 to 12.75
No. 1 busheling	11.25 to 11.75
No. 1 machine cast	13.00 to 13.50
Iron axles	16.25 to 17.25
Axle turnings	7.25 to 8.25
Machine shop turnings	7.50 to 8.00
Grate bars	9.25 to 10.25
Pipes and flues	10.00 to 10.50
Tank iron	8.25 to 9.25
Hoop and band iron	5.25 to 6.25
Sheet iron	4.25 to 5.25
Wrought drillings	7.50 to 8.00
Stove plate	10.25 to 11.25
Cast borings	5.00 to 6.00

CINCINNATI.

Smaller Tonnage Sold Than During Preceding Week.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Jan. 21.

Pig Iron.—Activity in the pig iron market has somewhat subsided and the business placed and inquiry pending represents a smaller tonnage than in the preceding week. So far as can be definitely established, prices remain unchanged, but persistent reports of $12.50 Birmingham on southern iron and $16 at furnace for northern iron continue current in this territory. So freely are these quotations exploited that it makes it difficult to obtain orders at $13 Birmingham for southern iron and $17 at furnace for northern. While this is true, we are unable to give the name of any southern maker or northern furnace that is departing from the established basis. Inquiry this week is largely for malleable iron and high silicon also is called for in moderate quantities. Northern 8 per cent silicon remains quotable at $21.50 at furnace. Buying has been confined to small lots ranging from 100 to 1,000 tons. Some of the leading makers in the south are reported to have advanced their prices to a basis of $13.50 Birmingham, but several southern brands are still obtainable at $13 and openly quoted on that basis. Northern irons are held at $17 at furnace for No. 2 and malleable quite generally, but it is strongly intimated that at least one furnace in the Ironton district has taken business below this basis. We quote for prompt delivery and first quarter delivered Cincinnati based on freight rates of $1.20 from Ohio furnace and $3.25 from Birmingham as follows:

Southern Foundry No. 1	$16.75 to 17.25
Southern Foundry No. 2	16.25 to 16.75
Southern Foundry No. 3	15.75 to 16.25
Southern Foundry No. 4	15.25 to 15.75
Southern No. 1 Soft	16.75 to 17.65
Southern No. 2 Soft	16.25 to 16.75
Southern Gray Forge	14.75 to 15.25
Northern No. 1 Foundry	18.20 to 18.70
Northern No. 2 Foundry	17.70 to 18.20
Northern No. 3 Foundry	17.20 to 17.70
Northern 8 per cent Silicon	22.70 to 23.20

PER TON

Finished Material.—The market is dull and retail prices are slightly lower for some descriptions. Small orders are filled here at the following prices:

Angles, 3 x 3 and over, 2.15c to 2.25c; beams and channels, 15 inches and under, 2.15c; small angles and architectural channels, 2.10c base; plates ¼-inch and heavier, 2.05c; 3-16-inch 2.15c; No. 8, 2.15c; sheets (blue annealed) No. 10, 2.25c; No. 12, 2.30c; No. 14, 2.35c; No. 16, 2.45c; box annealed sheets, Nos. 18 and 20, 2.65c; Nos. 22 and 24, 2.75c; Nos. 25 and 26, 2.80c; No. 27, 2.85c; and No. 28, 2.95c; boiler tubes, 62 per cent off base; turnbuckles, 45 per cent off; rivets, 3.15c base; cold rolled shafting, 50 per cent off list; steel tire, 2.05c base.

Coke.—The market continues quiet and easy with an occasional lot of spot coke selling at low prices. It is reported that furnace coke has been sold around $1.60 at the ovens, but this quotation is believed to have been made on high sulphur cokes which are not suitable for blast furnace use and are known as smelter cokes used for smelting copper ores. Quotations in the leading coke producing districts are as follows:

Wise County Furnace Coke	$1.75 to 2.00
Wise County Foundry Coke	2.40 to 2.65
Pocahontas Furnace Coke, prompt shipment	1.75 to 2.00
Pocahontas Foundry Coke	2.40 to 2.65
Connellsville Furnace Coke, prompt shipment	1.90 to 2.00
Connellsville Foundry Coke	2.25 to 2.50

Old Material.—The market continues dull and lifeless with quotations difficult to establish under lack of trading and the wide divergence of views as to values. Nominal quotations here are as follows:

Old No. 1 R. R. wrought, net tons	$12.00 to 12.50
Cast machine and fdy., net tons	12.50 to 13.50
Old iron rails, gross tons	16.50 to 17.50
Old steel rails (re-rolling) gross tons	12.50 to 13.50
Old short lengths, gross tons	12.50 to 13.50
Old iron axles, net tons	16.50 to 17.50
Heavy melting scrap, gross tons	13.00 to 14.00
Stove plate, net tons	10.50 to 11.50
Wrought turnings	5.50 to 6.50
Cast borings, net tons	4.50 to 5.50
Car wheels, gross tons	16.50 to 17.50

Rogers, Brown & Co. have been appointed sole agents for the Rockdale Iron Co. of Rockdale, Tenn.

PHILADELPHIA.

Sales to Pipe Makers—Prices Are Well Maintained.

Jan. 21.

Pig Iron.—Vigorous efforts are being made to hold prices to the schedules generally agreed upon as fair by the leading interests, and it is believed that there will be no great difficulty in doing so. Inquiries continue in fair volume, and some large sales of iron have been made to pipe founders in Camden, Burlington and other eastern cities, who receive large municipal contracts. As reported in THE IRON TRADE REVIEW, one large concern last week bought some 20,000 tons of southern iron on a basis of about $13 Birmingham. More business is expected in February, as it is well known that a number of large consumers are practically bare of stocks, and they must buy unless they intend to close their plants entirely. The gradual improvement in the financial world, with the greater ease of money, is expected to produce similar results in the iron and steel trade, as it insures a continuance of commercial activity. For the present, however, it must be admitted that foundrymen and others report scarcely any new business and until their orders increase there will be little gain in pig iron production. Output has been further reduced by the blowing out of the Earlston furnace, and this policy will be rigidly adhered to if every furnace has to be closed. Prices show some improvement over the extremely low figures which prevailed a fortnight ago, and may be quoted as follows:

No. 1X Foundry	$18.75 to 19.25
No. 2X Foundry	18.25 to 18.50
No. 2 Plain	17.75 to 18.00
Standard Gray Forge	16.50 to 16.75
Basic	17.25 to 17.50
Low Phosphorus	23.50 to 24.00

New Material.—There is no essential change to be noted. Iron bars have weakened under the recent decision to let each maker fix his own price, but other forms of finished material are held pretty firmly to the schedule. New business still continues very small, and the mills hold to their policy of closing down and resuming according to the condition of their order books. Prices may be quoted as follows: Beams, channels and angles, as according to specifications, 1.85c to 1.90c; refined iron bars, 1.55c to 1.65c; steel bars, 1.75c to 1.85c; plates, 1.85c to 1.90c.

Old Material.—There has been a slight improvement in demand, and the mills have recently bought more scrap than for many weeks before. This has checked the downward tendency, for the time at least, and in the table below the only declines to be noted are in old iron axles and wrought turnings. The remainder of the list continues unchanged, as follows:

Old steel rails	$13.50 to 14.00
No. 1 steel scrap	12.00 to 12.50
Old steel axles	17.50 to 18.00
Old iron axles	20.00 to 21.00
Old iron rails	15.50 to 16.00
Old car wheels	17.50 to 18.00
Choice scrap R. R. No. 1 wrought	14.00 to 14.50
No. 1 yard scrap	13.50 to 14.00
Machinery scrap	15.50 to 16.00
Low phosphorus scrap	16.00 to 16.50
Wrought iron pipe	11.00 to 11.50
No. 1 forge fire scrap	10.00 to 10.50
No. 2 forge fire scrap, ordinary	8.00 to 8.50
Wrought turnings	8.50 to 9.00
Axle turnings, heavy	10.00 to 10.50
Cast borings	7.00 to 7.50
Stove plates	11.50 to 12.00

NEW YORK.

Prospective Business in Finished Lines is Heavier.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St., Jan. 21

Pig Iron.—Aside from one sale in this district of 1,000 tons of foundry iron for delivery through the next three months and several sales of from 100 to 500 tons, all for comparatively early shipments, the local market is still without marked activity, though indications continue to pile up that consumption is increasing and a better demand may be expected. A number of producers of standard northern basic pig iron held a conference in this city late last week, but, so far as can be learned, several important interests were not represented and nothing resulted beyond the exchange of ideas. The fact that lake ore interests have not yet settled upon or announced the 1908 prices is exerting a deterrent effect on pig iron activities, as manufacturing interests feel that, with this leading factor in the cost of raw materials yet undetermined, they can not safely contract far ahead for the disposal of iron with the present price level so near production cost. Eastern furnaces have reduced their price for No. 2X foundry, Jersey City delivery, to $18.25, a cut of 25 cents. The rate for New England delivery, $19.50, has not been disturbed and is being well maintained. British advices state that, after touching 48s for No. 3 Middlesbrough, the market has taken an upward turn and that further improvement is anticipated. We quote, tidewater delivery, as follows:

Northern Foundry No. 1	$18.50 to 19.00
No. 2X Foundry	18.25
No. 2 Plain	17.50 to 18.00
Malleable	19.00 to 19.50
No. 2 Southern Foundry	17.50 to 17.75
Basic	17.25 to 17.75

Ferro-Manganese.—There is little activity and the level of the market has dropped to slightly below $47.00, seaboard. Deeming this figure too low for profitable business, a leading interest has practically withdrawn from the market.

Finished Materials.—In finished materials, prospective business is heavier than in months past, but actual contracts developing are still exceedingly few. No award has been announced on the 3,100 tons of steel for the National City Bank. The rebuilding of the old custom house and several other large jobs are pending. The McClintic-Marshall Construction Co. took 1,800 tons of bridge work and 400 went to a Chicago contractor. Bookings of the leading interests have been very light during January. There is evidence that in many cases contractors without steel shops are entering low bids for steel work in anticipation of a decline in the price of shapes and plates, which is hardly warranted. There is brisk inquiry from abroad for light rails, but little business results. There is increased interest for domestic use. Competition for cast iron pipe business is active, 200 tons for Brunswick, N. J., going at under $24.50 delivered for 6 to 10-inch. In other finished lines prices are being well maintained, with the exception of bar iron. Following the recent action of western manufacturers in reducing the base price on bars to 1.40c, Pittsburg, Eastern producers have authorized their salesmen to take on business at this figure, although no official change in price has been decided upon. The current price of scrap, however, is so low that some credence is given to rumors of the shading of this reduced figure. We quote: Angles, 3 to 6 inches x ¼-inch and heavier, 1.86c; beams, 3 to 15 inches, 1.86c; tees, 3 x ¼-inch and heavier, 1.91c; plates, car loads, tanks, 1.86c; marine boiler, 2.26c; bar iron, 1.56c; soft steel bars, 1.76c; sheets, No. 28, black, 2.66c.

Old Materials.—Railway lists for this month were of limited tonnage. They were taken up promptly, but, with the exception of one or two lines, prices paid were lower than the month previous. Heavy melting steel and railroad wrought were slightly higher. The sale is reported of 500 tons of old car wheels in this district and sellers of alloys report a brisk trade in those lines needed for the melting up of old wheels. Otherwise the market is still extremely inactive and prices are largely nominal. Heavy steel is somewhat scarce. No exportation of scrap has yet de-

veloped. We quote, New York prices, as follows:

Old iron rails	$18.00 to 18.50
Old steel rails, re-rolling	14.50 to 15.00
Relaying rails	21.00 to 22.00
Old car wheels	17.00 to 18.00
Old iron car axles	**17.00 to 17.50**
Old steel car axles	**15.50 to 16.00**
Heavy melting steel	9.50 to 10.00
No. 1 railroad wrought	12.00 to 12.50
Iron track scrap	11.00 to 11.50
Wrought pipe	9.00 to 9.50
Cast borings	4.50 to 5.00
Wrought turnings	6.00 to 6.50
Heavy cast scrap	14.00 to 14.50
Railroad malleable	14.00 to 14.50
Agricultural malleable	13.50 to 14.00
Stove plate	11.50 to 12.00
Grate bars	9.50 to 10.00

ST. LOUIS.

Large Interests Holding for Higher Prices in Pig Iron.

Jan. 20.

Pig Iron.—A careful canvass of the trade in the St. Louis territory indicates that the price of $13 for No. 2, Birmingham basis, effective for the last few days, has been withdrawn, and a price of $13.50 substituted. The market seems firm at this latter price, with fairly satisfactory orders booking for shipment over the first and second quarters of 1908. Inquiries are coming in rapidly, and buyers are showing great interest in the present quotations. It seems that the low price of $13 had been made by smaller furnace interests, and that the largest concerns remained firm at $13.50. No prices are being made in this territory for shipment over the last half of the present year, and very few inquiries are coming in for that delivery.

Our quotations, f. o. b. Birmingham, to which $3.75 freight is to be added, follow:

No. 1	Southern	$14.00 to 15.00
No. 2	Southern	13.50 to 14.00
No. 3	Southern	13.00 to 13.50
No. 4	Southern	12.50 to 13.00

Coke.—The coke market is down, with very little new business in sight. The remarkably good weather prevailing here has helped shipments, and prices have consequently fallen off slightly. There is plenty of coke for shipment from stock and offered at the following prices: 72-hour Connellsville foundry, $3 to $3.25, f. o. b. ovens; other grades of Connellsville foundry, $2.50 to $3. This latter price is for prompt shipment. Low-sulphur furnace coke, 28-hour, can be had at $2.00 to $2.25 f. o. b. ovens, and spot shipment and on contract. Smelter coke, $1.50 at the ovens. The freight rate is $2.80 to East St Louis, and $2.90 to St. Louis. Virginia foundry coke is being sold at $2.75 to $3 ovens for immediate and future shipment. The freight rate on Virginia coke is $2.80 to East St. Louis, $2.90 to St. Louis, and $2.40 when destined beyond the latter point.

Finished Material.—The market remains about the same as last week, no new buildings being projected. Considerable complaint is heard that the railroads are not in the market for any kind of material that is not absolutely needed, and that some of the trunk line systems are behind to large extent with their payments for coke and other material.

BUFFALO.

Inquiry is Persistent, But Buying is on a Small Scale.

Office of THE IRON TRADE REVIEW,
932 Ellicott Square, Jan. 21.

Pig Iron.—Actual buying continues at a minimum and is still of immediate requirement order only. Such sales as are made are at unsatisfactory prices, which show a wide variance. One furnace which is out of blast, has received inquiries during the past week for lots of from 300 to 500 tons and has a request for quotations on a carload every five days, but is not prepared to say when a resumption will be made.

The only real encouraging feature is a persistence of inquiries, which, however, have not to date developed into a buying movement. The foundries continue closed down or on part time.

A threatened strike of union molders and coremakers at the plant of the Buffalo Co-operative Stove Co., employing about 50 men, was averted Monday by the acceptance on the part of the union men of the stand of the company, placing the shop on an open basis and resulting in the establishment of the piece price system. The company insisted that there should be no further restriction of output by the union. It is said that there was an ample number of non-union men ready to take the strikers' places, had there been a walkout.

The market for finished material is dull. Canadian sales are said to total five times those on this side of the border.

The following represents the market as nearly as can be ascertained, in view of the lack of substantial buying:

No. 1X Foundry	$18.50 to 19.00
No. 2X Foundry	18.00 to 18.50
No. 2 Plain	17.50 to 18.00
No. 3 Foundry	17.25 to 17.75
Malleable Bessemer	18.50 to 19.00
Gray Forge	17.00 to 17.50
Charcoal	24.00 to 25.00

The Charter Oak Stove & Range Co., St. Louis, resumed operations after an idleness of seven weeks. All of the 500 employes will be taken on very soon, and the company believes that conditions will become normal very rapidly.

BIRMINGHAM, ALA.

Firmer Quotations Result From Recent Sales to Pipe Interests.

Jan. 20.

Several orders of good size have recently been booked by Alabama pig iron manufacturers in addition to the frequent small lot orders and as a consequence there is a strengthening of the quotations again. The announcement was made the last of last week that one of the smaller furnace companies had withdrawn from the market altogether, having sold up on the probable make for the first quarter of the year. This was significant information. As a consequence, the larger furnace companies begin to feel the inquiry for iron. Cast iron pipe interests which were in the market since the first of the year doing the best they could and taking up all iron under the $13 and even $13.25 price, placed orders for a nice round tonnage of the product, one company, it is reported, buying well up in the thousands tons. President Joseph Hoadley, of the Alabama Consolidated Coal & Iron Co., wired to the daily press in Birmingham during the past week that his company had booked one order for 18,000 tons and that the price had strengthened again to $13.50 for No. 2 foundry. It is stated that one of the smaller companies found itself well booked ahead and declined an additional order for Nos. 3 and 4 foundry, 5,000 tons, delivery during January, February and March. J. W. McQueen, vice president and general sales agent of the Sloss-Sheffield Steel & Iron Co., spent the better part of last week in the east in conference with other iron men in regard to the quotations and conditions. The Sloss-Sheffield Co. has but three out of seven furnaces in operation. It is stated on the best of authority that this company has been holding its iron for $13.50 per ton, No. 2 foundry.

Sells Ship Building Plant.—The Canadian Ship Building Co. has sold its entire Toronto plant to A. Berg & Sons, Toronto, manufacturer of brick machinery, and will concentrate its operations at the Bridgeburg, Ont., plant, where it controls 125 acres. The reason assigned for the sale is that the machinery does not suit modern requirements, being inadequate for the engine work for large steamers. Berg & Sons will remodel the entire establishment and turn out brick-making machinery employing from 200 to 300 men.

METAL MARKET

NEW YORK.

Jan. 21.

Copper.—The bulk of business continues to be for export, heavy selling of electrolytic for this purpose being reported, while domestic consumers are still holding to their waiting policy. Prices, however, are slightly higher and the tone of the market is healthy. We quote: Lake, 13¾ to 14¼c; electrolytic, 13½c to 14c; casting, 13¼c to 13¾c.

Pig Tin.—London activity has been followed by increasing business in this country, with the result that prices have advanced slightly notwithstanding the fact that business is still of limited volume. The market level is about 27¾c.

Pig Lead.—The trend of the market is upward, owing to improved inquiry and an actual increase in business placed. New York is quoting 3.65c to 3.75c.

Spelter.—Spelter has advanced sharply during the week, both because of business placed and of the speculative influence. We quote 4.50c to 4.60c, New York.

Antimony.—There is a marked improvement in the situation, both in tone and business. Cookson's is selling at 9c to 9¼c; Hallett's at 9c, and ordinary brands at 8¼c to 8½c.

CHICAGO.

Jan. 21.

Metals are without much life in the local market. Buying is of a desultory character and only of sufficient proportions to meet current needs. We quote as follows:

Lake copper, 15c; casting, 14½c; pig tin, 30c to 30¼c; spelter, 4.60c to 4.70; pig lead, desilverized, 4.00c to 4.10c in 50-ton lots; corroding, 4.60c to 4.75c in 50-ton lots; car lots, 2½ per 100 pounds higher; sheet zinc, 7c list, f. o. b. La Salle, in car lots of 600-pound casks; Cookson's antimony, 12½c to 13c; other grades, 12c to 12½c.

Old metals are dull and the situation remains without change. Prices to jobbers are as follows:

Copper wire, 11½c; heavy copper, 11½c; light copper, 10½c; heavy red brass, 10½c; heavy yellow brass, 8¼c; light brass, 5¾c; No. 1 red brass borings, 9c; No. 1 yellow brass borings, 6¾c; brass clippings, 8½c; tea lead, 2¾c; lead scrap, 3c; zinc, 3½c; tin pipe, 22c; tin foil, 18c; pewter, 15c; electrotype plates, free from wood, 3⅜c; electrotype dross, 2¼c; stereotype plate, 3¾c; stereotype dross, 2½c; prime slab zinc dross, $53 per ton.

ST. LOUIS.

Jan. 20.

Lead and Zinc.—The ore market recovered to such an extent in the Joplin district last week that zinc sold at $40 a ton on a basis of 60 per cent ore. The demand was very strong, and purchases were made early in the week. Many operators encouraged by the exhaustion of low-grade ores in the west and Mexico continue to hold for still better prices.

Lead ore was also in strong demand, selling as high as $50 a ton. Ore shipments were light, and those of zinc were not greatly enlarged over those of the previous week. The advance in the basic price for zinc was $3 a ton.

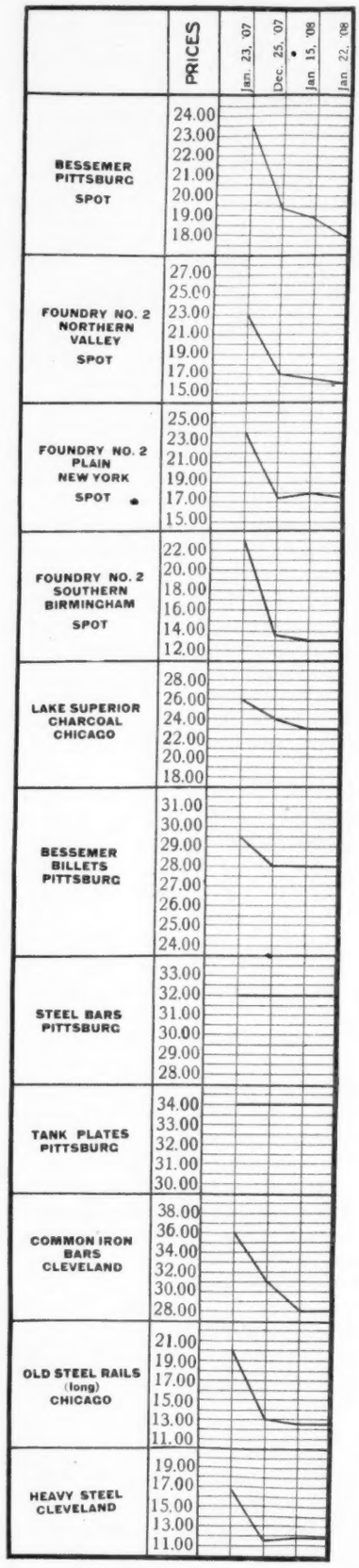
Within a period of two weeks it is believed that the entire field will have resumed operations. Many mines formerly idle are now in operation, and many more will start up within the next few days.

BUFFALO FOUNDRYMEN'S ASSOCIATION.

Buffalo, N. Y., Jan. 21.—At its annual meeting Tuesday evening, the Buffalo Foundrymen's Association elected the following officers for the ensuing year: President, William H. Barr, Luman Bearing Co.; vice president, H. D. Miles, Buffalo Foundry & Machine Co.; secretary, J. E. Gorss; treasurer, George M. Trefts, Farrar & Trefts; executive committee, Edward Kener Jr., Buffalo Co-operative Stove Co.; William Gomez, Buffalo Pitts Co.; E. G. Felthousen, Acme Steel & Malleable Iron Co. The reports of the secretary and treasurer showed the association to be in a prosperous condition.

Club House For Miners.—Pickands, Mather & Co., have just built for their employes in the Stambaugh district a fine new club house located at the Baltic mine. The building, which has just been opened, was erected at the cost of, approximately, $8,000, and has been planned and furnished to afford recreation facilities for all classes of its employes. The club contains reading and writing rooms, billiard tables and bowling alleys and many club conveniences unusual to a mining location. The general superintendent, Charles E. Lawrence, writes that every advantage is taken of this social opportunity by the men.

PRICE CHART.



PLAN OUTLINED

For Readjustment of Affairs of Westinghouse Electric & Mfg. Co.

A committee of seven, representing holders of a large amount of the debt of the Westinghouse Electric & Mfg. Co., has adopted a plan and agreement for its readjustment, details of which have just been made public. This committee includes James N. Jarvie, New York; A. G. Becker, Chicago; Richard Delafield, New York; Charles A. Moore, New York; Neal Rantoul, Boston; F. H. Skelding, Pittsburg; and Albert H. Wiggin, New York. Based upon statements furnished by Haskins & Sells, who have been auditors of the company since 1902, the present debt, exclusive of interest, amounts to $35,000,000, of which the floating debt is $14,531,000. Debts secured by collateral amount to $8,750,000.

It is proposed to create an issue of $35,000,000 first mortgage and collateral trust 5 per cent 25-year gold bonds, secured by a first mortgage upon the principal manufacturing plants of the company and by the pledge of the greater part of the company's unpledged stocks and bonds of subsidiary and other companies. Of such issue of bonds an amount not exceeding $20,469,000, face value, are to be convertible at the option of the holder or registered owner, after Jan. 1, 1910, upon such terms and conditions as shall be provided in the deed of trust. The deed of trust will provide for sinking fund payments.

The deed of trust will provide further that the collateral notes mentioned above as debt secured by collateral shall be retired at or before maturity, and provision will be made in the deed of trust that, as to any deficiency, holders of the collateral notes may share pro rata with the holders of the new bonds in the property covered by the lien of the mortgage.

Holders of the three-year 6 per cent collateral notes of the issue of $6,000,000, maturing Aug. 1, 1910, and also, if they shall so elect, the holders of the issue of 10-year, 5 per cent collateral notes shall exchange them for new or modified notes of the same maturity and bearing the same interest, with modified provision for collateral and with the right to participate in the case of deficiency pro rata with the holders of the new bonds in the lien on the property covered by the mortgage, as set forth in the plan.

Unless otherwise determined by the committee, the consummation of the plan is to be conditioned upon subscriptions for the payment of $7,000,000 new capital stock into the treasury of the company for stock.

SEE PROSPECTS OF TRADE IMPROVEMENT.

Discussion of trade conditions and the election of officers were the principal features of the annual meeting of the New York and New Jersey branch of the National Metal Trades Association held recently. As to trade conditions, an official statement was issued, part of which is given as follows:

The reports on the conditions of business prevailing in the plants of the members, including ship yards and plants manufacturing engines, boilers and general machinery, showed that the business had fallen off more than 50 per cent during the last year, the greatest decline being shown during the last three months, except in the ship repairing, ship yards being kept quite busy, with a prospect of improvement in the near future. In normal times the members employ about 12,000 men, and about one-half of that number are employed now. No reductions in wages were made, and in some cases wages were increased. The shipwrights obtained a general increase, and 5 per cent increase was granted by members to a number of individual employes in the shops.

In the choice of officers the following were named: President, George Q. Palmer, of Quintard Iron Works; vice president, Charles A. Haney, of the Slocum & Chase Co.; treasurer, L. A. Bevin, of the Rider-Ericsson Engine Co.; counsel and secretary, Henry C. Hunter. The new board of directors consists of H. N. Covell, W. J. Davidson, Gilbert M. Edgett, Robert S. Wyatt, Peter Weber, Mark W. Woman and W. D. Forbes.

Wm. B. Gillies, consulting engineer for the Illinois Steel Co., Chicago, was killed Monday, Jan. 20, by a fall on an ice-covered pavement near his home, 5459 Washington avenue, Chicago. Deceased first became identified with the local concern in 1876, in which year he entered the employ of the North Chicago Rolling Mill Co. In 1880, he became master mechanic at this plant, and two years later was made master mechanic of the South Chicago works, in which capacity he continued until 1898, when he became consulting engineer for the company. Mr. Gillies was born in Beith, Ayrshire, Scotland, in 1839.

Production in Alabama has been improved but little since the first of the year, two furnaces being placed in operation, one belonging to the Alabama Consolidated Coal & Iron Co., producing foundry iron and the other at Ensley, belonging to the Tennessee Coal, Iron & Railroad Co., manufacturing basic iron for use at the big steel plant.

BRITISH IRON MARKET.

Quarterly Meeting Was Not as Pessimistic as Had Been Expected.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation Street,
Birmingham, Eng., Jan. 11.

It is generally agreed that the pig iron market has improved somewhat during the past week. The true condition is hardly reflected in the Cleveland market, prices being substantially the same as a week ago, yesterday's closing quotation being 48s 7d ($11.88) cash, with 48s 3d ($11.80) one month, but the steadiness is a good sign, and has encouraged dealing. At the quarterly meeting in Birmingham on Thursday there were a remarkable number of inquiries for pig iron mainly because so many contracts were exhausted at the end of the year. A great number of small orders has been placed, confidence not yet being sufficiently restored to encourage much forward buying. The stocks at Middlesbrough are 88,625 tons, the amount on hand being practically unchanged during the week. The decrease in stocks during December was only 6,738 tons, the smallest since February, 1906. The total decrease during last year was 448,951 tons, and the average decrease per month between March, 1906, and November, 1907, was 31,000 tons.

The quarterly meeting in Birmingham this week was very far from realizing the pessimistic anticipations regarding it for some weeks past. It was, on the whole, a cheerful meeting, and a fair amount of business was transacted. It was preceded by a reduction in prices of marked bars by the usual firms, namely: Earl of Dudley's Round Oak Works; N. Hingley & Sons, Dudley; Barrows & Sons, Tipton; John Bagnall & Sons, Wednesbury; and John Bradley & Co., Stourbridge Iron Co. The reduction amounts to 10 shillings, making the standard £8 10s, though there are some local variations. At the quarterly meeting, the galvanized sheet makers reduced prices from £13 2s 6d to £12 10s, tinned sheet makers £2 per ton, making the standard £29 and £31, and slit nail rods were reduced 10 shillings. The sheet and tin reductions were mainly due to cheaper tin and spelter.

There was continued weakness in steel. Most of these reductions are readjustments which do not represent any new feature, but have been inevitable for weeks past.

Jefferson furnace, Oak Hill, Jackson County, O., went out of blast Jan. 8 after a period of successful operation.

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OUR IMMENSE IRON AND STEEL PRODUCTION.

The statistics of American iron and steel production which have been made public this month run into enormous figures. We are so used to these large totals, and the great increases which occur almost every year, that it is hard to realize their magnitude.

Our blast furnace statistics for December completed the tally for 1907 and indicate, with a small probable error, that our pig iron output in 1907 was in the neighborhood of 25,750,000 gross tons. This is easily in excess of the combined output of the United Kingdom and Germany, and is well over 40 per cent of the world's total output.

Some of the 1906 statistics, which Mr. Swank has now given in full, had already been presented. The statistics of pig iron and steel ingots and castings were made public early in 1907; the statistics of rolled iron and rolled steel were only made public this month. The figures are as follows:

Production in 1906, Gross Tons.	
Pig Iron	25,307,191
Bessemer steel ingots and castings	12,275,830
Open-hearth steel ingots and castings	10,980,413
Crucible, etc., steel ingots and castings	141,893
Total steel ingots and castings	23,398,136
Rolled steel	17,401,911
Rolled iron	2,186,457
Total rolled iron and steel	19,588,468

As noted, the production of pig iron in 1907 made a gain of about 450,000 tons over 1906. Had there not been the sudden slowing down in the two closing months of 1907, the gain would probably have been all of 2,000,000 tons. The merchant blast furnaces slowed down much less than did he steel works furnaces, so that the gain in steel production was less than the gain in pig iron. The following rough estimates may be made for 1907 production — Bessemer steel, about the same as in 1906, 12,275,000 tons; open-hearth steel, about 200,000 tons gain, or about 11,175,000 tons; crucible and miscellaneous steel, about the same as in 1906, 150,000 tons; total steel ingots and castings, about 200,000 tons gain, or about 23,600,000 tons.

It is important to note that the actual production of steel, as the steel market knows it, was not nearly so large as these figures indicate. Nothing like a quantity of 23,400,000 or 23,600,000 tons of steel was shipped from steel works in 1906 or 1907. Steel ingot statistics are the records of the ingot scales. There is an endless chain of material going from the steel producing plant over the ingot scale, into the rolling mill, and back to the steel producing plant, especially to the open-hearth furnace.

Included in the steel figures for 1906 above given are 773,705 tons of castings, made chiefly by the open-hearth process, leaving a remainder of 22,624,431 tons cast in the ingot form. From this tonnage there were produced only 17,401,911 tons of rolled steel, in the form of rails, wire rods, plates, sheets, skelp, etc., each material being weighed in the form it had after the last rolling and shearing operation. This is 5,222,520 tons less than the tonnage of steel ingots.

The scrap trade often wonders where the open-hearth steel industry finds its scrap. The quantity bought in the open market has always been disappointing, and dealers are disposed to question statements of steel makers as to the percentage of scrap they use in their furnaces. This 5,000,000-ton difference between ingot and finished steel production is an ample explanation.

In 1906 the production of rolled iron was 2,186,547 gross tons. This was partly puddled from pig iron, but was made chiefly from scrap, by scrapping, busheling, faggoting, heating piles on boards, etc., and being weighed in the finished rolled form is comparable with the rolled steel output rather than with the steel ingot output. A trifle more than 11 per cent of the total rolled product is iron.

It is not well, therefore, to think of the iron and steel industry in terms of steel ingots or other intermediate forms, when the production of 22,624,431 tons of steel ingots involves the production of only 17,401,911 tons of finished rolled steel. It is better to observe that in each of the past two years the United States made between 25,000,000 and 26,000,000 tons of pig iron and with it, aided by a certain tonnage of scrap and a small tonnage of iron ore, it produced between 6,000,000 and 7,000,000 tons of iron castings, about 800,000 tons of steel castings, about 17,500,000 tons of rolled steel and about 2,200,000 tons of rolled iron, a total of somewhere in the neighborhood of 27,000,000 tons of castings and rolled material.

A cursory examination of statistics of the production of steel ingots would appear to indicate that the production of steel has increased much more rapidly than has the production of pig iron, but an inference of this sort would not be correct. The average production in 1899 and 1900 of steel ingots was 10,225,000 gross tons; in 1906 it was 22,625,000 tons, the tonnage thus much more than doubling. The average production in 1899 and 1900 of pig iron was 13,700,000 tons; in

1906, it was 25,300,000 tons, so that it fell considerably short of doubling. In 1899 and 1900 the average production of rolled iron and steel (the figures were not separated in those years) was 9,900,000 tons, while in 1906 the production was 19,588,468 tons, so that the production fell a trifle short of doubling, although steel ingot production showed a gain of 121 per cent. The extra gain of 20 or 25 per cent in the ingot statistics was not a real gain, but represented largely the re-weighing of new scrap which the steel industry itself made.

The meat of this comparison lies in the fact that the steel industry has not, as might otherwise be supposed, increased largely the proportion it takes of the country's total pig iron production, leaving a greatly decreased proportion of the pig iron for the iron founding industry. The iron foundries are consuming about the same proportion of the total pig iron make as they formerly did. The rapid growth of the steel industry has not detracted materially from the popularity of the iron casting. Even the steel castings has not made such wonderful strides, when measured by tons rather than by percentage. The average production of steel castings in 1899 and 1900 was 187,000 tons, with an increase to 773,705 tons in 1906. The production quadrupled, but the gain in quantity was less than 600,000 tons, and this is small compared with pig iron and steel ingot statistics, which go by tens of millions of tons.

BRITISH AND AMERICAN EXPORTS.

The iron and steel exports from the United Kingdom have been as follows in the past three calendar years, in gross tons:

1905	3,721,382
1906	4,682,200
1907	5,166,366

The British system of statistical returns includes a number of items in the weight of iron and steel exports which are not so returned in the American system, including a wide range of machinery. Were the British statistics compiled on the same lines as the American, the 1907 total would probably be in the neighborhood of 4,000,000 tons. Our own statistics for December are not available yet, but assuming December exports to have been the same as those in November, the year's total would come up to about 1,330,000 tons, about the same as in 1906, and only one-third the British exports.

This illustrates what has been urged before in these columns, that the United States is relatively inconsequential as an iron and steel exporting country. Our exports are but one-third the British, while our production is two and one-half times as great. Our home market is probably five times that of the British.

In the past three years, we have done much less than the British to extend foreign markets, while the British have increased their trade amazingly, their exports in 1907 having easily been the record. In the current year there will be much keener competition for foreign business and the statistical result may be different. British ironmasters, however, seem to be confident that they can meet all their rivals without fear, and can maintain their tonnage fairly well even though they may have to make a material concession in the matter of profits.

BROADENING THE EDUCATION OF ENGINEERS.

The Engineering College of the University of Minnesota has announced that hereafter five years will be required to complete any of the three courses leading to engineering degrees. This radical departure by one of the largest and most progressive engineering schools in the middle west from the time honored four-year course is pertinently indicative of the real tendencies of the period in regard to technical education. It also affords a sharp contrast to the efforts which some schools have made within the last few years to reduce the length of their engineering courses from four to three, or even two years.

The two principal reasons which led the faculty at Minnesota to make these changes are: First, the rapid development, within the past 10 years, of the steam turbine, the use of superheated steam, the gas engine, gas producer, long distance high tension transmission of electrical energy and the application of electricity to many lines of industry including shop installations and heavy railway service, make it imperative that these subjects be given some place in the college curriculum. The curriculum is already so overburdened that much of the work taken is but poorly assimilated by the average student. The only way, then, that these new, important subjects can be given even superficial attention without burdening an already crowded course to the breaking point is to add one more year.

The second reason, equally important, is that heretofore the purely engineering subjects have taken so much time that the student had none left either for much needed social intercourse or for studies of a purely general and broadening character. The result has been that men have been graduated who, although undoubtedly well grounded in mechanical, electrical or civil engineering, were yet almost totally lacking in social poise and in that knowledge of human nature which can be gained only by proper social intercourse, and who were so narrow in their training that it could not be truly said they were educated men. The addition of the extra year to the course is expected to alleviate both of these weaknesses.

Engineering itself has grown to cover so many fields that four years is altogether too brief a period to gain even a superficial knowledge of all its branches and departments. Yet the successful engineer of today must not only know one department of his profession thoroughly, but he must be intimately acquainted with the whole wide field. More than this, he must be a broadly educated, cultured man, fitted to be at ease in any society and competent to meet and deal equally with men in the highest walks of life. Five years, then, is by no means too long a time to ground a young man even in the fundamentals required for a successful engineering career.

PROGRESS REPORT

On Rail Specifications Adopted by American Society of Civil Engineers.

At the annual meeting of the American Society of Civil Engineers, held at the building of the society in New York, Jan. 15, the progress report presented by the special committee on rail sections at the Mexican meeting was brought up as a special order of business and was adopted without discussion. Recommendations contained in this report include the cropping of 25 per cent or more from the ingot for either Bessemer or basic open-hearth rails and the regulation of the number of passes and speed of train so that, on leaving the rolls at the final pass, the temperature of the rail will not exceed that which requires a shrinkage allowance at the hot saws, for a 33-foot rail of 100-pound section, of 6 7/16 inches, and 1/16 less for each 5-pound decrease of section. The specifications also include recommendation for the manufacture of basic open-hearth rails together with their chemical composition for 70 to 100-pound sections.

Bessemer Steel Rail Specifications.

The standard specification for Bessemer steel rails adopted by the society follows:

Process of Manufacture.—The entire process of manufacture and testing shall be in accordance with the best state of the art and the following instructions shall be faithfully executed:

Ingots shall be kept in a vertical position in the pit heating furnaces until ready to be rolled, or until the metal in the interior has had time to solidify.

No bled ingots shall be used.

There shall be sheared from the end of the blooms formed from the top of the ingots not less than 25 per cent, and if, from any cause, the steel does not then appear to be solid, the shearing shall continue until it does. If, by the use of any improvements in the process of making ingots, the defect known as piping shall be prevented, the above shearing requirements may be modified.

The number of passes and speed of train shall be so regulated that on leaving the rolls at the final pass, the temperature of the rail will not exceed that which requires a shrinkage allowance at the hot saws, for a 33-foot rail of 100-pound section, of 6 7/16 inches, and 1/16 inch less for each 5-pound decrease of section. These allowances to be decreased at the rate of 1/90 inch for each second of time elapsed between the rail leaving the finishing rolls and being sawn. No artificial means of cooling the steel shall be used after the rails leave the rolls, nor shall they be held before sawing for the purpose of reducing their temperature.

Section.—The section of rail shall conform, as accurately as possible, to the templet furnished by the railroad company, consistent with the paragraph relative to specified weight. A variation in height of 1/64 inch less, or 1/32 inch greater than the specified height, and 1/16 inch in width will be permitted. The section of rail shall conform to the finishing dimensions.

Chemical Composition.—Rails of the various weights per yard specified below shall conform to the following limits in chemical composition:

	70 to 79 pounds. Per cent.	80 to 89 pounds. Per cent.	90 to 100 pounds. Per cent.
Carbon	0.50 to 0.60	0.53 to 0.63	0.55 to 0.65
Phosphorus shall not exceed	0.085	0.085	0.085
Silicon shall not exceed	0.20	0.20	0.20
Sulphur shall not exceed	0.075	0.075	0.075
Manganese	0.75 to 1.00	0.80 to 1.05	0.80 to 1.05

Drop Test.—One drop test shall be made on a piece of rail, not less than 4 feet and not more than 6 feet long, selected from each blow of steel. The test piece shall be taken from the top of the ingot. The rails shall be placed head upward on the supports, and the various sections shall be subjected to the following impact tests under a free falling weight:

70 to 79 pound rails.....18 feet
80 to 89 pound rails.....20 feet
90 to 100 pound rails.....22 feet

If any rail breaks when subjected to the drop test, two additional tests may be made of other rails from the same blow of steel, also taken from the top of the ingots, and if either of these latter rails fail, all the rails of the blow which they represent will be rejected, but if both of these additional test pieces meet the requirements, all the rails of the blow which they represent will be accepted.

The drop-testing machine shall have a tup of 2,000 pound weight, the striking face of which shall have a radius of not more than 5 inches, and the test rail shall be placed head upward on solid supports 3 feet apart. The anvil block shall weigh at least 20,000 pounds and the supports shall be part of, or firmly secured to, the anvil. The report of the drop test shall state the atmospheric temperature at the time the test was made.

Weight.—The weight of the rails will be maintained as nearly as possible, after complying with the preceding paragraph, to that specified in contract. A variation of one-half of one per cent for an entire order will be allowed. Rails will be accepted and paid for according to actual weights.

Length.—The standard length of rails shall be 33 feet. Ten per cent of the entire order will be accepted in shorter lengths varying by even feet to 27 feet, and all No. 1 rails less than 33 feet long shall be painted green on the ends. A variation of ¼ inch in length from that specified will be allowed.

Drilling.—Circular holes for splice bars shall be drilled in accordance with the specifications of the purchaser. The holes shall conform accurately to the drawing and dimensions furnished, in every respect, and must be free from burrs.

Straightening.—Care must be taken in hot-straightening the rails, and it must result in their being left in such condition that they shall not vary throughout their entire length more than 5 inches from a straight line in any direction, when delivered to the cold-straightening presses. Those which vary beyond that amount, or have short kinks, shall be classed as second-quality rails and be so stamped.

Rails shall be straight in line and surface when finished—the straightening being done while cold—smooth on head, sawed square at ends, variation to be not more than 1/32 inch, and, prior to shipment, shall have the burr occasioned by the saw cutting removed, and the ends made clean. No. 1 rails shall be free from injurious defects and flaws of all kinds.

No. 2 rails shall be accepted up to 5 per cent of the whole order. They shall not have flaws in their heads of more than ¼ inch, or in the flange of more than ½ inch in depth, and, in the judgment of the inspector, these shall not be so numerous or of such a character as to render them unfit for recognized second-quality rail uses. The ends of No. 2 rails shall be painted white, and shall have two prick-punch marks on the side of the web near the heat number brand, and placed so as not to be covered by the splice bars. Rails from heats which failed under the drop-test shall not be accepted as No. 2 rails.

Branding.—The name of the maker, the weight of the rail, and the month and year of manufacture, shall be rolled in raised letters on the side of the web; and the number of the blow shall be plainly stamped on each rail where it will not subsequently be covered by the splice bars.

Inspection.—The inspector representing the purchaser shall have free entry to the works of the manufacturer at all times when the contract is being filled, and shall have all reasonable facilities afforded him by the manufacturer to satisfy him that the finished material is furnished in accordance with the terms of these specifications. All tests and inspection shall be made at the place of manufacture prior to shipment.

The manufacturer shall furnish the inspector daily, with carbon determinations for each blow, and a complete chemical analysis every 24 hours, representing the average of the other elements contained in the steel, for each day and night turn. These analyses shall be made on drillings taken from small test ingots. On the request of the inspector, the manufacturer shall furnish drillings for check analyses.

Open-Hearth Rails.

For basic open-hearth rails.—The specifications for rails made by the basic open-hearth process shall be the same as for Bessemer rails, excepting that a full chemical determination shall be furnished for each heat and two drop tests from each. Their chemical composition shall be:

	70 to 79 pounds. Per cent.	80 to 89 pounds. Per cent.	90 to 100 pounds. Per cent.
Carbon	0.53 to 0.63	0.58 to 0.68	0.65 to 0.75
Phosphorus shall not exceed	0.05	0.05	0.05
Silicon shall not exceed	0.20	0.20	0.20
Sulphur shall not exceed	0.06	0.06	0.06
Manganese	0.75 to 1.00	0.80 to 1.05	0.80 to 1.05

Heavier Sections.

The committee also reported that it is in consultation with similar committees of other bodies as well as interested parties on the subject of modified rail sections. In designing heavier sections, particular attention is being given to the advisability of increasing the percentage of metal in the webs and flanges as compared with the existing sections recommended by the society.

The society meeting was extremely well attended and large crowds were taken on a tour of the New York

tunnels and terminals of the Pennsylvania system and of the Blackwell's Island bridge. The election of officers resulted in the choice of the following: President, Charles McDonald, New York city; vice presidents, George F. Swain, Boston, and Mordecai T. Endicott, Washington; treasurer, Joseph M. Knap, New York; directors, Charles L. Harrison, New York; George W. Kittredge, New York; Dexter Brackett, Boston; Gardiner S. Williams, Ann Arbor, Mich.; Horace Andrews, Albany; and Charles S. Churchill, Roanoke, Va.

DINNER DATE CHANGED.

A change has been made in the date of the second dinner of the members of the general committee appointed by iron and steel manufacturers to cooperate for the best interest of the industry. As originally planned, the dinner was to have taken place at the Waldorf Astoria, New York, Wednesday, Jan. 29, at 7 o'clock. It is now intended to hold the dinner the following day, Thursday, Jan. 30.

The general committee has decided to divide the duties heretofore referred to the sub-committee on billets and sheet bars. The list is made up of John A. Topping, chairman; E. C. Felton, A. C. Dinkey, E. A. S. Clarke, Willis L. King, J. A. Campbell and Howard Wood.

Contracts for Brick Work.—In the last issue of THE IRON TRADE REVIEW, a news item was published giving a list of contracts of work at a number of blast furnace plants taken by P. J. Brown, contractor of Cleveland, during the year 1907. The information was furnished by Mr. Brown, but was in some respects misleading, although he did not intend it so to be. The contracts referred entirely to the brick work done at the furnaces mentioned. The steel work on the new stack of the Cleveland Furnace Co. is being done by the Variety Iron & Steel Works Co., which company also recently built a stove for the furnace of the Upson Nut Co. The steel work of the Perry Iron Co.'s plant at Erie, Pa., was done by the Sharon Boiler Works Co.

The Foster Stove Co., Ironton, O., has elected diretcors and officers as follows: Col. H. A. Marting, president; Dr. A. C. Lowry, vice president; W. H. Foster, secretary and treasurer; E. O. Mrting, J. C. Marting, C. H. Hutsinpillar, O. P. Doty and E. E. Horschel. The company's plant is temporarily suspended.

MEETING OF ROGERS, BROWN & CO.'S FORCES.

Rogers, Brown & Co. celebrated their 27th anniversary in Cincinnati this week with their usual meeting of officers and representatives. The meeting convened on Wednesday, Jan. 14. The visitors and local representatives were entertained at the Country club with a luncheon and an enjoyable program was prepared in which the members of the organization participated. On Wednesday evening, the representatives of the firm and its members were entertained at the home of D. B. Meacham. The closing meeting was preceded by luncheon at the Business Men's Club on Thursday. On this occasion there were general talks by the salesmen and member of the firm. These annual meetings have become a feature with Rogers, Brown & Co., and have proven of advantage in many ways. The following were present:

W. A. Rogers, M. C. Armour, W. T. Shepard, D. B. Meacham, A. A. Fowler, E. L. Billingslea, J. K. Pollock, Robert Gilchrist, G. R. Sullivan, S. W. Hubbard, Harwood Wilson, Jas. R. Darragh, H. W. Fernald, J. C. Mears, F. W. Bauer, C. A. Stillman, F. I. Foote, F. C. Wright, H. E. Frazier, E. McBirney, H. E. Turner, W. D. Patton, Geo. W. Douglas, A. J. Wentworth, H. B. M. Yergason, R. D. Meacham, T. A. Wilson, Ralph W. Clark, Noah H. Swayne 2d, William Sampson, A. O. Galloway, F. W. Miller, Chester D. Tripp, R. T. Melville, F. J. Waldo, O. Arlt, F. E. Fitts, William P. Cheney, F. Von A. Cabeen Jr.

TWENTY-SEVENTH ANNIVERSARY
Rogers, Brown & Co., Country Club, Cincinnati, Jan. 15, 1908.

!! *One Performance Only* !!
THE WORLD'S GREATEST PIG IRON PUSHERS!
A MAMMOTH AGGREGATION NEVER BEFORE EQUALED

N. B.—The Management is not responsible for anything which may result from a change in the order of this program.
N. B. TWICE.—The order in which these acts appear does not imply variation of merit. All are supposed to be equally great—and we have tc begin somewhere.

MAGNIFICENT ADDRESS OF WELCOME
BY
= M = COCHRANE = ARMOUR =
OF CHICAGO—BY THE LAKE YOU KNOW
Especially obtained after much effort and more argument to officiate as MASTER OF CEREMONIES and SUP'T. of this particular hot air BLAST.

GRAND CHORUS
(OF LISTENERS)
W. A. ROGERS—D. B. MEACHAM—A. A. FOWLER—W. T. SHEPARD—J. K. POLLOCK
Positively the most ATTENTIVE, APPRECIATIVE & ATTRACTIVE quintette ever appearing at one time under similar conditions.

THE PRIDE OF PHILADELPHIA
GEORGE R. SULLIVAN
in his entertaining and most instructive monologue
"My Eastern Pennsylvania"

THAT PEERLESS SINGER	THE MOST EXPENSIVE ACT OBTAINABLE NOAH H. SWAYNE 2D in his latest solo effort entitled *"Songs—Simply Songs"*	WONDERFUL 300,000 TON STRONG MAN
OUR EASTERN IMPORTATION	ROBERT W. GILCHRIST. positively sidesplitting *"The Qualifications of a Successful Salesman"*	THE ATLAS OF THE NEW YORK OFFICE
THE BEST EVER	CONGRESS *of thought and debate "How I Have Made a New Customer"* BY THE FLYING SQUADRON OF SALESMEN	BEYOND THE LIMIT

1 R. T. MELVILLE
2 F. J. WALDO
3 R. W. CLARK
7 = COUNT THEM = 7
7 F. VON A. CABEEN JR
4 F. E. FITTS
5 GEO. W. DOUGLAS
6 THOS. A. WILSON

Replete With Daring and Sensational Flights of Oratory and Common Sense—Once Heard Never Forgotten—Numbered in the Order of Their Appearance.

TELEGRAPHIC DISPATCH—*Special*—It is reported that the price of Midnight Oil has advanced sharply during the week in Buffalo, New York, Boston, St. Louis, Pittsburg and Philadelphia districts.

THE COKE CHAMPIONS
FRANK — MILLER AND CHENEY — WILLIAM
In Their Unsurpassed Specialty
NOTE—Mr. Miller appears first in this act.

"Short on Name" *"Long on Cables"*
= O ARLT =
in His Best and Latest Importation Direct From Long Runs Abroad and Presented Here C:F for the First Time
"Foreign Specialties in Dull Days"

YOU ALL KNOW HIM	A Blaze of Glory E. L. BILLINGSLEA. *"A Salesman as a Help to the Office"*	THE MAN WITH THE SMILE

(Owing to an unfortunate oversight Mr. Billingslea's mammoth stereopticon was left in Chicago)

OBITUARIES.

Daniel C. Stover, manufacturer of stoves, wind mills and farm machinery, died at Freeport, Ill., Jan. 17. He was 68 years of age.

Thomas R. Pickard, for 53 years superintendent of the Bass Foundry & Machine Co., Ft. Wayne, Ind., died Jan. 13, aged 80 years. He has been ill but a short time with pneumonia.

Daniel S. Egleston, head of the firm of Egleston Bros. & Co., New York, iron merchants, and actively engaged in the trade at the time of his illness, died Jan. 9, in that city, aged 78 years.

John G. Brown, president of the firm of Brown & Wales, iron and steel merchants, and a prominent citizen of Cambridge, Mass., died recently as a result of a stroke of apoplexy.

Charles A. Porter, director of the New Haven Iron & Steel Co., the Susquehanna Iron & Steel Co., and other corporations, died recently at his home in Philadelphia. He was formerly state senator in the Pennsylvania state legislature.

George Q. Erkskine, a former prominent business man of Racine, Wis., died recently at the home of his daughter at Crookston, Minn., aged 80 years. For many years he was connected with the J. I. Case Plow Works as its secretary.

William F. Mosser, head of the firm of W. F. Mosser & Co., Allentown, Pa., foundrymen, died Jan. 6 at the age of 73 years. He had varied business relations in different parts of the country and was a very large producer of cement-making machinery.

Charles H. Smyth, a retired iron merchant, died Jan. 19 at the home of his son in Princeton, N. J. He was for 20 years president of the Franklin Iron Works at Clinton, N. Y., where he was a prominent resident, being a trustee of Hamilton College. He was 68 years of age.

Edgar A. Kuhns, a successful business man of Dayton, O., died Jan. 4 from organic heart trouble at the age of 57. After graduating from Wittenberg college, Mr. Kuhns engaged in business with his father, who was one of the pioneers of the reaper and harvester manufacturing lines. This partnership continued until the death of his father a few years ago, since which time the son had conducted the business.

Robert Dickson, who during the civil war was general manager of the Knapp Foundry, which was on the site now occupied by Mackintosh-Hemphill & Co., Pittsburg, died at his home in Indianapolis, Jan. 9, aged 89 years. Mr. Dickson was born in County Tyrone, Ireland, and came to Pittsburg when 14 years old. In early life he was associated with the Dickson-Stewart Co., coal operators. Twenty years ago he removed to Colorado and from there to Indianapolis. Interment was at Pittsburg.

George C. Cresson, head of the Philadelphia manufacturing concern which bears his name, died Jan. 18 after a prolonged illness at his country home near Elkins Park. The death of his wife several months ago proved such a severe shock that he had never fully recovered from its effects. Mr. Cresson was 71 years of age. He was born in Philadelphia, his father, William P. Cresson, being a prominent philanthropist and manufacturer. Mr. Cresson learned the trade of machinist with the firm of Bement & Dougherty and in 1859 went into business for himself, establishing the firm of Cresson & Hubbard, which in 1866 removed its plant to Eighteenth and Hamilton streets, where a new partner was taken in and the firm name became Cresson, Hubbard & Smith. Mr. Hubbard retired during the following year and in 1870 Mr. Cresson established the Philadelphia Shafting Works, locating at Eighteenth street and Allegheny avenue. In 1892 this business was incorporated as the George V. Cresson Co. Mr. Cresson was a member of the Franklin Institute, the Engineers' Club and the Manufacturers' Club of Philadelphia, besides many church and social organizations.

PERSONALS.

Horace S. Wilkinson has been made general manager of the Halcomb Steel Co., Syracuse, N. Y.

James T. Gibson has been appointed general superintendent of the Bessemer plants of the Tennessee Coal, Iron & Railroad Co., Bessemer, Ala.

Col. Horace L. Haldeman, treasurer of the Pulaski Iron Co., Philadelphia, has been elected a director of the Western National bank, of that city.

H. P. Keyhoe, superintendent of the Ottumwa Iron Works, Ottumwa, Ia., has resigned to enter business for himself.

A. L. Roberts has entered the employ of Pawling & Harnischfeger, Milwaukee, as mechanical and designing engineer. Mr. Roberts, for 18 years, was with the Morgan Engineering Co.

Robert G. Wells has been made superintendent of the Struthers, O., works of the Morgan Spring Co., Mr. Wells had been in the employ of the Morgan Construction Co., at Worcester, Mass.

J. S. Kent, for two years superintendent of the rail mill of the Dominion Iron & Steel Co., Sydney, Nova Scotia, has resigned. He leaves shortly for a trip to England, returning to the United States in the spring.

F. V. McMullin, formerly foreman of the forging department of the Westinghouse Machine Co., Pittsburg, has been made superintendent of the Cleveland City Forge & Iron Co., Cleveland. Mr. McMullin is a former secretary of the Engineers' Society of Western Pennsylvania.

Sir Alfred Hickman, the prominent English ironmaster, was recently thrown from his automobile and sustained painful injuries, but it is not believed that they will prove dangerous. Sir Alfred is 77 years old.

T. Vaughan Stapler, formerly advertising manager for the American Sheet & Tin Plate Co., has connected himself with Hill & Stocking, advertising agents, with offices in the Commonwealth Trust building, Pittsburg, and will devote his time exclusively to the planning of advertising campaigns and the preparation of business literature.

Thomas P. Egan, president of the J. A. Fay & Egan Co., has been elected president of the Chamber of Commerce, Cincinnati. In his statement made after his election, Mr. Egan expressed his gratification at the result and pledged himself to devote his best energies to the upbuilding of the city's business interests by his administration of the affairs of the chamber of commerce.

Elias Crandall, general superintendent of the Globe Iron Co., Jackson, O., suffered a stroke of paralysis recently and is now in a serious condition. Mr. Crandall is the author of an elaborate history of early blast furnace operations in the Hanging Rock district, a summary of which was published in THE IRON TRADE REVIEW.

Company is Fined.—The International Harvester Co. has been found guilty in the Shawnee county district court of Kansas on 43 counts of violating the anti-trust law of that state, and has been assessed a fine of $12,600. The specific charge was made by the state that implement dealers in Topeka were compelled to sign a contract with that company to handle no other harvesting machinery save that made by the International Harvester Co., and the schedule of prices was not to be violated.

THE LARGE BILLET MILL ENGINE AT THE DONORA STEEL WORKS

The horizontal girder frame engine built by the Wisconsin Engine Co., Corliss, Wis., to drive the 30-inch billet mill at the Donora plant of the Carnegie Steel Co., is in many respects a noteworthy installation. It has been operating continuously now for more than two months and can therefore be said to have demonstrated the merit of its design and regulation under the exacting conditions of heavy and rapidly changing load for which it was intended. Figs. 1, 2 and 3 are views taken in the mill, and Fig. 4 is a general drawing of the complete unit. As may be seen in the illustrations the engine is a tandem-compound and runs condensing. The horsepower it is capable of developing—5,000 at normal full load and 10,000 maximum—at a speed of 80 revolutions per minute, is probably as severe duty as has been placed upon a single engine bed and moving parts up to this time and in consequence very heavy construction has been used in the frame; and in the moving parts the strongest design compatible with lightness has been employed. The total weight of the engine is 448 tons, and the weight of the bed stripped is 101 tons.

The mill which the engine drives (direct-connected) is a 30-inch three-high billet mill with one roller's table with 13 rollers 6 feet 7 inches wide by 47 feet long, having a vertical movement, and one catcher's table of the same width and 40 feet long with both a vertical and horizontal movement. The load of five successive reductions of the billet occurring cumulatively through the coincidence of five simultaneous passes must be borne by the engine and it has been designed to meet this requirement. The bloom is received from the blooming mill 8 x 11 inches over a motor driven approach table.

An idea of the massive frame and main bearing box is obtained from Fig. 5, which is a drawing of the bed, and from Fig. 6. Special methods had to be adopted in molding and casting this piece into which 125 tons of metal were poured. The dry sand mold was built up in a floor pit and poured through three gates, two at the bottom and one at the top. The time required to complete the pour with three ladles operating simultaneously was a little less than five minutes.

The frame of the engine is 31 feet 3 inches long over all and 10 feet 9 inches wide. The center line of the main bearing, which has a bore of 30 inches, is 5 feet from the floor line and the top of the main bearing cap is 10 feet high. The outside diameter of the flange for bolting onto the low pressure cylinder is 7 feet 9 inches. The foundation is a concrete block 76 feet long, 26 feet 6 inches wide at the fly wheel end and 16 feet 4 inches wide at the cylinder end and 14 feet deep. This rests on a sub foundation which is continuous with the mill foundation. The foundation bolts are 3½ inches in diameter and there are

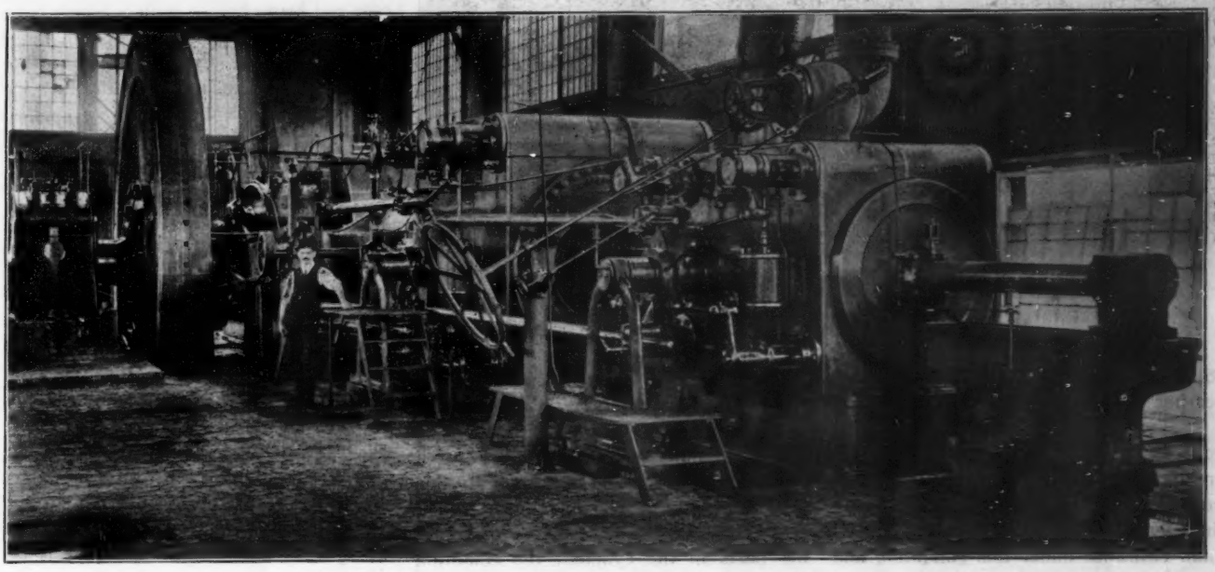


FIG. 1—BILLET MILL ENGINE AT DONORA WORKS OF CARNEGIE STEEL CO.

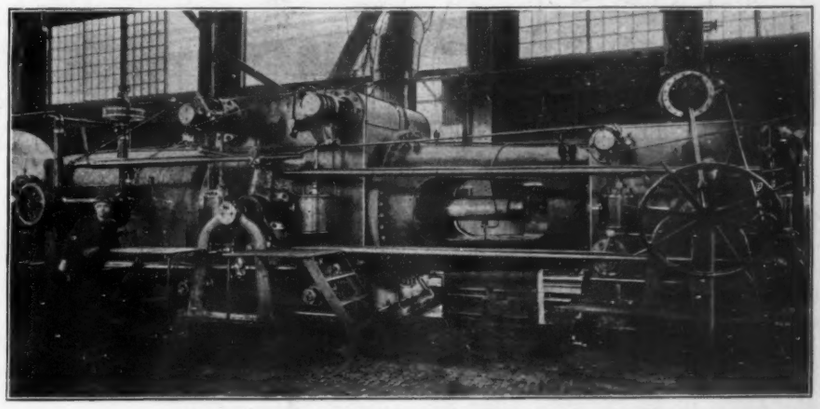


FIG. 2—HIGH AND LOW PRESSURE CYLINDERS AND VALVE GEAR.

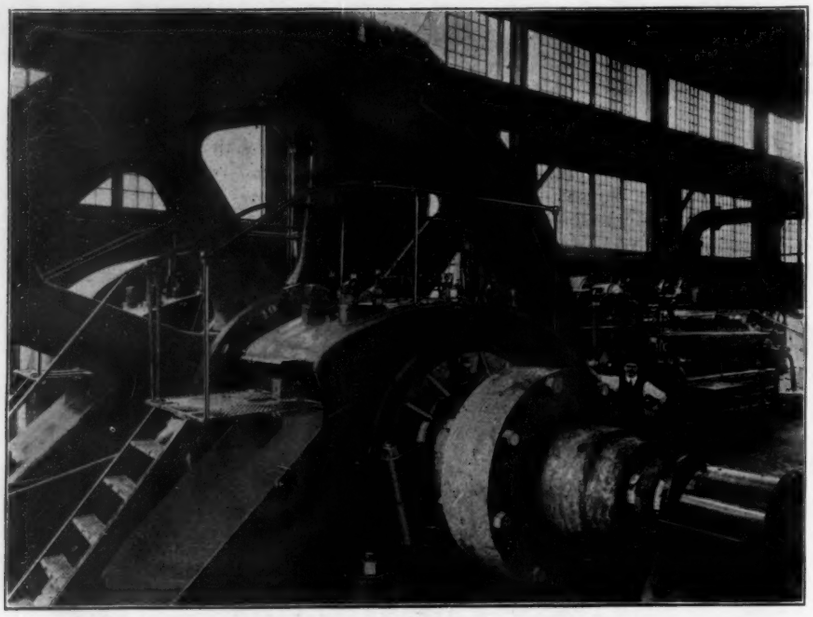


FIG. 3—FLY WHEEL AND OUTBOARD BEARING.

26 for the engine and 12 for the outboard bearing.

The cylinders are of the standard type built by the Wisconsin Engine Co., and are designed with the idea of using an umbrella type piston and so constructing the cylinder heads as to provide a minimum clearance under this condition, and also a maximum port opening. To gain this end is of course a common aim of engine builders, but the use of an umbrella type piston in the high pressure cylinder where the steam pressure is 150 pounds, as in this instance, is unique. In this case the high pressure piston has been designed with unusual depth to give it the necessary strength. The cylinders are 46 and 80 inches diameter with a stroke of 60 inches. With these large diameters the lightness of the pistons is an essential in preserving the bore of a horizontal cylinder from wear. In this engine with the added provision of a tail bearing to carry the weight of the moving parts in the cylinder, the condition of "floating" pistons is absolutely obtained. The cylinders are connected by a heavy tie frame which is designed with side openings more than large enough to permit a man to enter and thence through manholes of ample size in the cylinder heads entrance is possible right into the cylinder without tearing down any of the engine. The advantage of this in making quick repairs is apparent.

The pistons and also the crosshead and crank are made of cast steel. The crosshead, a view of which is shown in Fig. 7, has a pin 16 x 20 inches and is of special design. Instead of using wedges to set the crosshead in the shoes, the adjustment is made with shims that are permanent in location as long as the crosshead remains in the slides, avoiding all possibility of slips. The piston rods are 9 and 14 inches in diameter, the low pressure rod being hollow with a 5-inch bore. The high pressure rod is socketed in the low pressure and keyed in place and they are supported on a substantial bearing entirely independent of the tie frame, as shown in the illustration. The connecting rod is 15 feet center to center of pins, and its size is indicated in Fig. 8. The heavy design is continued in the size of the crank pin which is 18 x 18 inches, the main shaft, which is 30 inches diameter, and the main bearing, which is 52 inches long.

In the weight of the 110-ton fly wheel, 24 feet in diameter, and the associated question of valve motion, steam distribution and governor control the Wisconsin Engine Co. has worked out an individual solution to this problem which in the running of the engine up to this time has been shown well adapted to heavy mill work. The valve gear is designed for a long range cut-off which at the maximum load is 7/8 stroke. This permits of the load variation being distributed between the piston and the fly wheel and gives power to the reactions of the engine. In Fig. 11 are four indicator cards taken under different conditions and they show very clearly how the pressure holds up under heavy overload

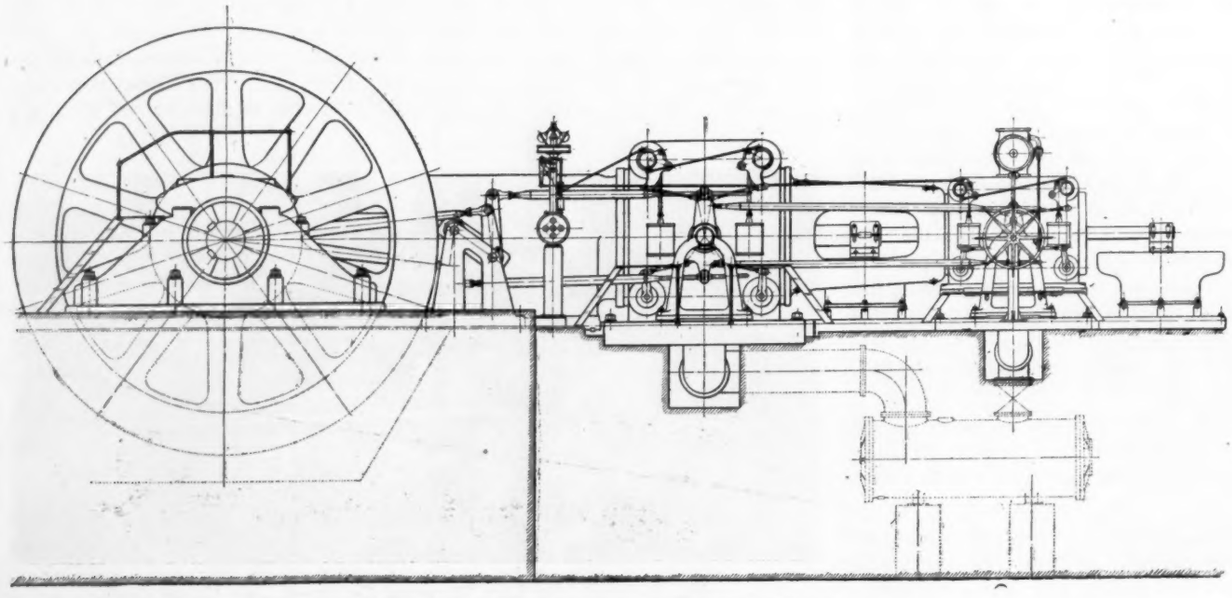


FIG. 4—GENERAL DRAWING OF COMPLETE ENGINE.

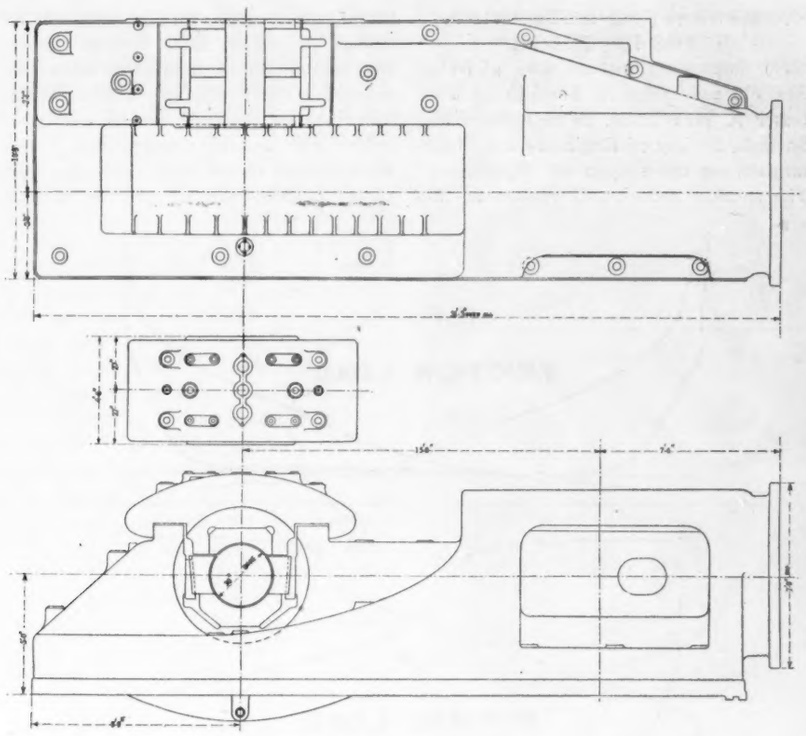


FIG. 5—BED OF ENGINE.

and how at the same time under normal load a sharp cut-off is obtained so that a nice balance is preserved between steam economy and good regulation.

The governor is the standard type built by this company of fly ball design, as shown in Fig. 9, and has been used on other than Wisconsin engines very successfully. Fig. 10 illustrates a feature of the valve gear showing how the dash pot rod is connected to the releasing block and valve stem as close to the cylinder head as possible rather than out at the end. The leverage is much less with this design, the pull of the dash pot is supported more directly by the cylinder head flange and in consequence there is much less of a wearing action on the valves.

The installation is also unique in the matter of rapid erection. Fourteen days after the parts were brought to the mill the engine was completely set up and running. This is the more remarkable in view of the fact that it has not been shut down since but has operated continuously with little adjustment.

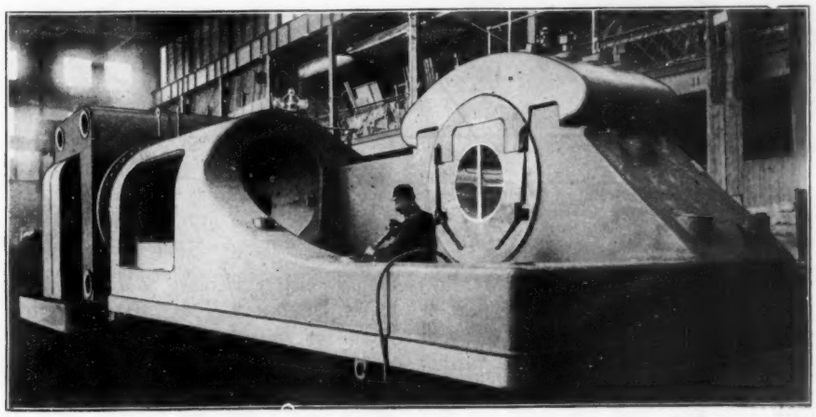


FIG. 6—ENGINE FRAME AND MAIN BEARING.

Briefly describing the further equipment of the billet mill for which this engine was installed indicates more clearly the demands on the plant. The front and back tables are so operated in relation to each other by means of hydraulic cylinders and bell cranks as to feed the piece successively through seven passes of the three-high mill from which it is finally delivered to the intermediate table. The back table is driven by motor, has 11 rollers and is 39 feet long. The intermediate table, also motor-driven, is 44 feet long and has 13 rollers and delivers the billet to the motor-driven shear table, which is 82 feet long with 23 rollers.

The shear is of the double type, hydrulic, and is driven by a double-acting steam using intensifier. The billets are cut in lengths from 24 inches to three feet, and are discharged from the shear on to a double shear table with four rollers at 8½-inch centers, the table being driven by chain and sprocket from the front shear table.

FIG. 7—CROSS HEAD AND PIN.

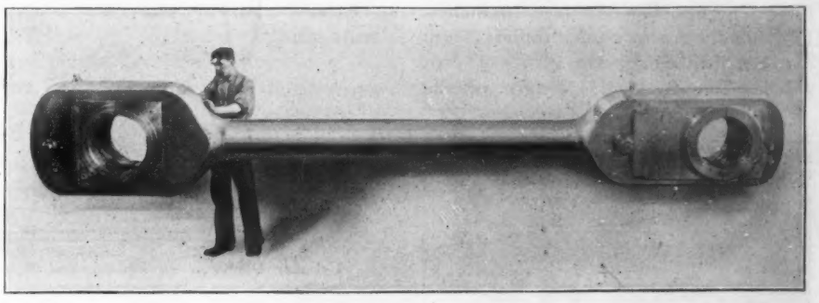


FIG. 8—CONNECTING ROD.

The back shear table proper is 20 feet long and transfers the billet to the run-out table, which is 119 feet long, delivering the finished piece to the hot bed tables.

The transfer to the hot bed is con-

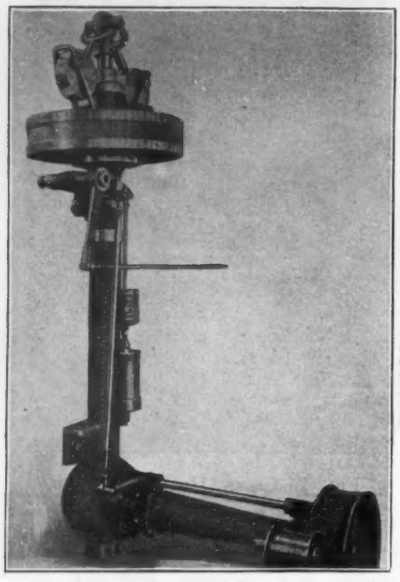


FIG. 9—ENGINE GOVERNOR.

trolled by hydraulic cylinders. The hot bed consists of three parts, the total length being 115 feet 10 inches. For handling the cooled billets from the hot bed, magnetic lifts are provided. The transverse length of the

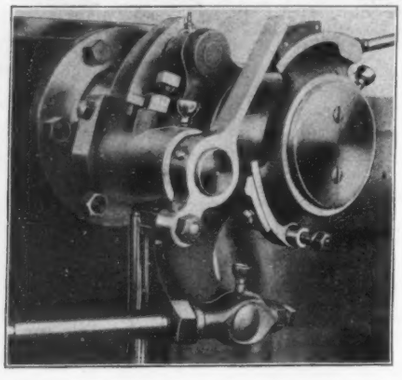


FIG. 10—VALVE TRIPPING MECHANISM.

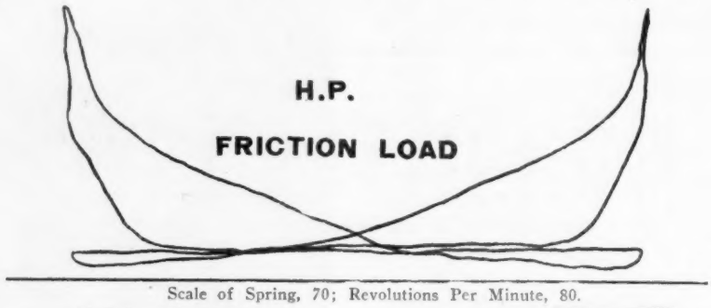
hot beds from the center line to the run-out table is 60 feet. For overhead service in the mill building a 40-ton crane serves the mill engine, the second 40-ton crane the mill, and three 10-ton cranes the hot bed.

Citico furnace of the Citico Furnace Co., Chattanooga, Tenn., was banked for repairs during December.

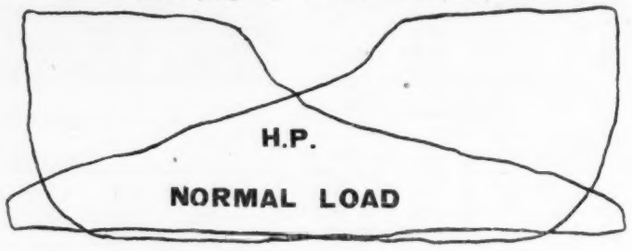
Perry furnace of the Perry Iron Co., Erie, Pa., was blown out Dec. 16.

TEMPERATURE DETERMINATIONS BY COLOR.

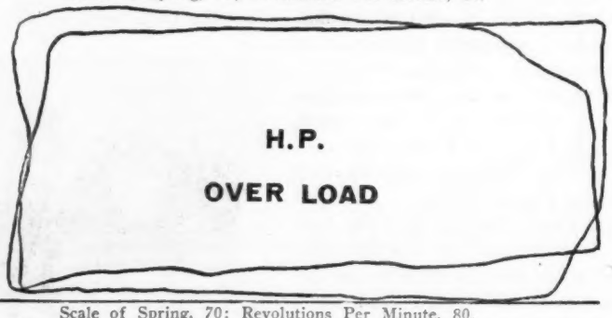
An interesting lecture was given at Sheffield university on Dec. 16 by Professor A. McWilliam, to members of the Sheffield Society of Engineers and Metallurgists, on the subject of "Pyrometry." The speaker defined this subject as "fire measurement." The time-honored method, said the lecturer, of judging heat by color was still most used. Black hot gave out heat rays only. On the further application of heat the substance became dark red, red, then the color so well known in Sheffield as "worm red," bright red, orange, through all tints of orange to yellow, then through fainter and fainter yellow tints until white was reached. There was still a considerable difference of opinion on the names of colors for certain temperatures. For example, one recent writer gave the color of a Siemens furnace on the boil as orange, whereas most workers would agree that the color at that temperature should be called white. He would consider that 700 degrees Cent. might be called a dark red, 800 degrees Cent. a bright cherry red, 900 degrees Cent. an orange, 1,000 degrees Cent. an orange



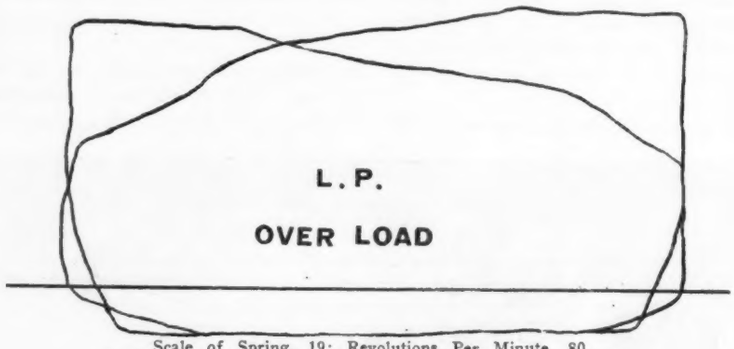
Scale of Spring, 70; Revolutions Per Minute, 80.



Scale of Spring, 70; Revolutions Per Minute, 80.



Scale of Spring, 70; Revolutions Per Minute, 80.
Cylinder Diameter, 46 Inches; Rod Diameters, 9 and 9½ Inches; Stroke, 60 Inches.



Scale of Spring, 19; Revolutions Per Minute, 80.
Cylinder Diameter, 80 Inches; Rod Diameters, 14 and 9½ Inches.

FIG. 11—TYPICAL INDICATOR CARDS.

yellow, 1,100 degrees Cent. clear yellow, and above that temperature nearer and nearer approximation to white. An ingenious method for determining temperatures below those at which luminous rays were given out was the well-known one used in connection with tempering hardened steels, namely to note the interference color given by the thin film of oxide that forms on the bright surface of iron or steel when it is heated to these varying low temperatures. At first this thin film of oxide gives a pale yellow color to the bright surface, at higher temperature a straw color, at a still higher temperature the film becomes thick enough to appear brown, still higher brown with some purple in it, and next to blue color, at a still higher temperature, the film becomes too thick to give a bright interference color and becomes what is sometimes called black. Those temperatures in Centigrade degrees ranged from about 220 degrees Cent. for the pale yellow to about 300 degrees Cent. for the blue. The first measurement of high temperatures by the eye could not be recorded, but it was obvious that those tempering colors formed a more or less exact record of the treatment of hardened steel. The Siemens water pyrometer being free from applications of galvanometers, leading wires, etc., was preferred for determining the temperature of large masses in big furnaces, where the length of leading wires in the furnace became troublesome, and he understood several armor-plate makers still used it, at any rate as an auxiliary for determining the quenching temperature of the plates. Sentinel pyrometers recently introduced in Sheffield in cylindrical form were made of mixtures of salt which would melt sharply at given temperatures.

The professor described several pyrometers and remarked that a recent modification of the thermo-electric pyrometer had been brought out for instantaneously taking the temperature of molten metal. This had already been done in the university by sacrificing the small portion of the metal forming the couple for each experiment, but this new pyrometer by Bristol, of New York, had the ends of the two wires of the couple free. These free ends were dipped into the molten metal and the temperatures which would be given in a few seconds were said to be the same as those given by the ordinary twisted thermo-couple.

On the subject of optical pyrometers the lecturer said that for temperatures above 1,200 degrees Cent. the platinum resistance pyrometers broke down, and even thermo-electric pyrometers could not be used for extended periods much above that temperature.

PORTABLE HYDRAULIC JACK AND ELECTRIC WINCH.

The Charles F. Elmes Engineering Works, Chicago, is manufacturing the convenient devices shown in Figs. 1 and 2. The portable hydraulic jack is ordinarily built of 100 tons capacity and is furnished complete with cylinder and ram pump, beams, rods, hydraulic gage and fittings. The cylinder is made of cast steel with a rack and pinion and lever for drawing back the ram. The pump is made of bronze, has a hand lever and is set on a cast iron bed which also serves as an oil or water tank. The total weight of the jack including cylinder, pump and beams is about 1,100 pounds.

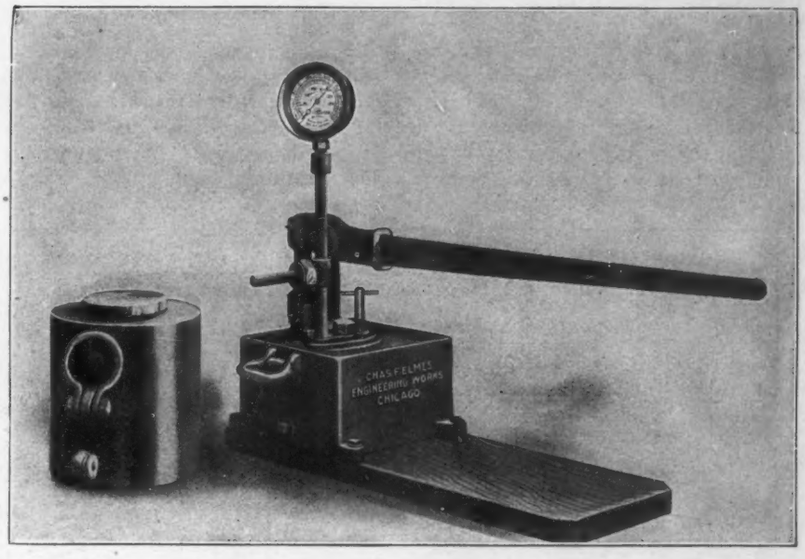


FIG. 1—PORTABLE HYDRAULIC JACK.

The electric winch is also of a portable size, weighing 425 pounds and ordinarily of one ton capacity. It is arranged to be driven either by hand or electric motor. The motor is of the reversible type.

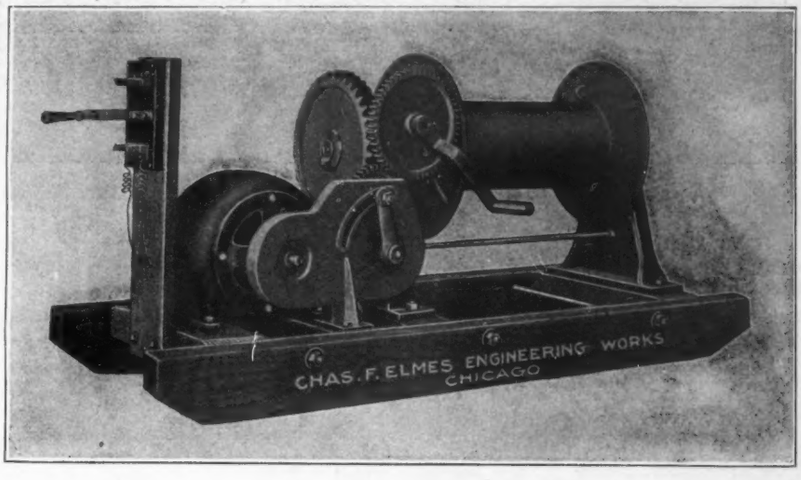


FIG. 2—PORTABLE ELECTRIC WINCH.

San Francisco's Year.—During the year 1907 building permits providing for an expenditure of $58,970,541 were issued in San Francisco, making a total of $93,276,605 granted since the fire. Real estate sales during the year aggregated a valuation of $31,624,122, bank clearings were $2,141,181,298, and customs receipts $8,124,715. The December statistics show building permits valued at $3,910,085; real estate sales of the number of 450, valued at $1,000,000, and bank clearings $123,307,458, compared with $196,216,734 in December, 1906, and $161,316,530 in December, 1905. Customs receipts of the month were $623,994.

EXTENSIONS OF THE PLANT OF THE ALLIANCE MACHINE CO., ALLIANCE, O.

Owing to the heavy increases in the demand for its line of electric traveling cranes, and to provide additional facilities for the building of steam hammers, rolling mill and hydraulic machinery, the Alliance Machine Co., Alliance, O., made extensive additions and improvements to its plant during the past year. When established six years ago, this concern brought out a line of cranes and other machinery for heavy duty requirements. So great was the demand for this type of electric traveling cranes, that the company soon found itself largely specializing in this line. Considerable business offered for steam hammers, rolling mill and steel works machinery, had, owing to the limited capacity, to be declined on account of the pressing demands of the crane department, notwithstanding the fact that a large addition was made to the plant in 1906.

Early in 1907, it was decided to make further extensions and to increase the capacity of the works to one crane daily of an average size of 25 tons, and at the same time to permit of a largely increased output of steam hammers, rolling mill and hydraulic machinery.

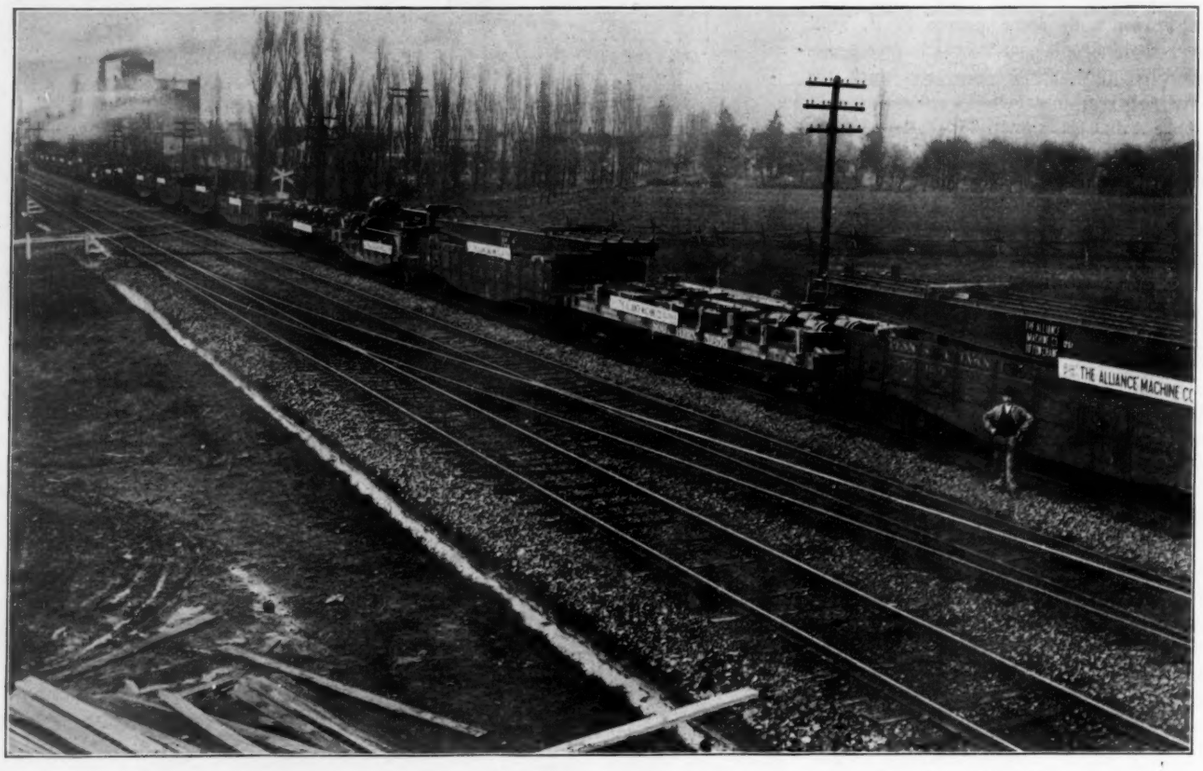


FIG. 1—SYSTEM OF SHIPMENT FOLLOWED BY ALLIANCE MACHINE CO., DEC. 24, 1907, 19 CARS.

Extensions.

As now arranged, the main building contains the machine shop, assembling and electrical departments. This layout was decided upon to ensure the closest departmental intercommunication and to reduce the handling of material to a minimum. To permit of this arrangement, the side wall of the existing building was removed, and the new building was erected parallel to it, so that an unbroken floor space of two acres was provided for these departments. Owing to the extreme width of the building, 218 feet, the problem of lighting was given special consideration with the gratifying result that all parts of the floor are now perfectly lighted. This structure has two main bays, each 38 feet high, commanded by 30-ton traveling cranes which are supplemented by 15-ton high-speed cranes. Jib cranes and special floor trucks are used in the side and center bays.

Machine Shop.

The machine shop equipment was greatly increased by the installation of a large number of modern tools, most of which are equipped with individual motors. Those that are belt driven are arranged in groups, one motor serving several of the machines. As now arranged, the machines form separate groups of planers, lathes, vertical boring mills, horizontal boring mills, milling machines, gear cutters and turret lathes. The trolley assembling department is shown in Fig. 3, and the machine shop in Fig. 2.

The tool room, shop offices and lavatory are located in the center of the building. This arrangement gives ample access to any part of the floor. The assembling department occupies one main and one side bay and the floor space is sufficient to permit of the assembling at the same time of 21 traveling cranes of an average span of 50 feet. Ample floor space is also provided for the assembling of rolling mill tables, hot beds and other steel works machinery.

Ventilation.

Notwithstanding the fact that the sides of the plant are largely glass, owing to the large number of win-

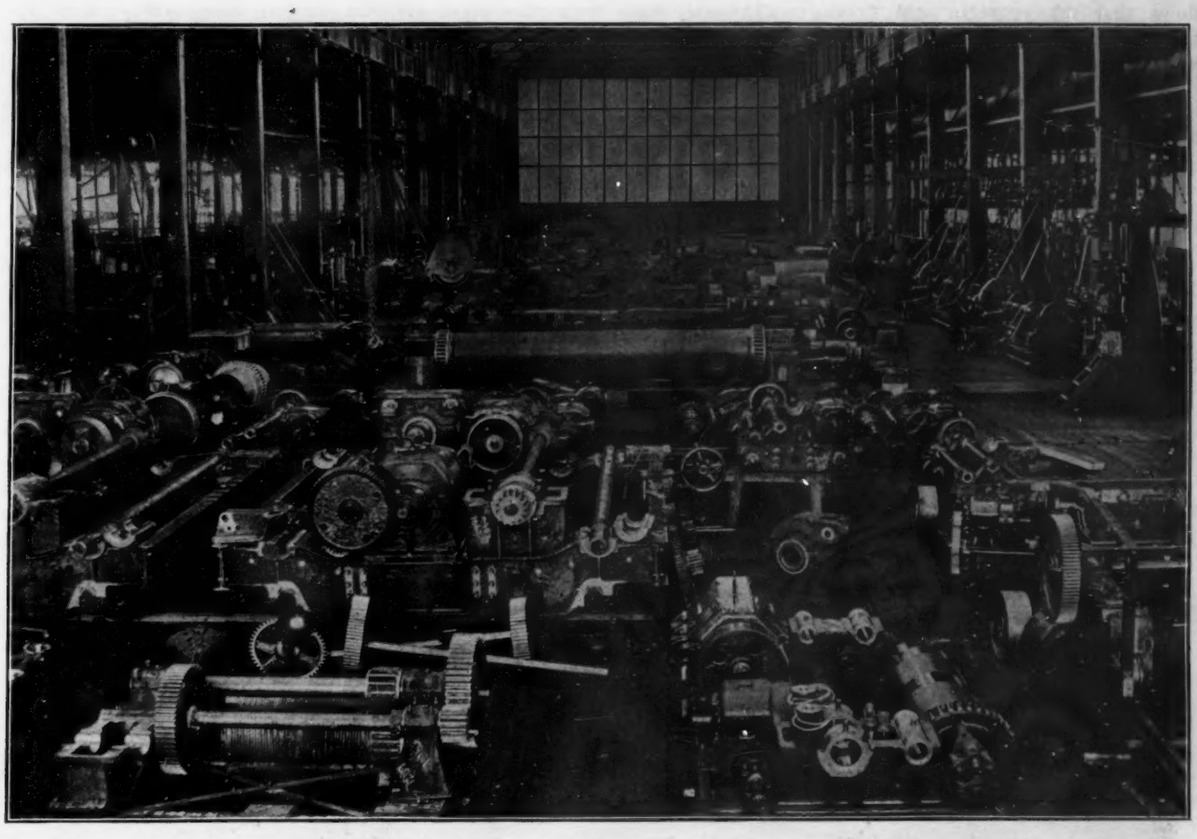


FIG. 2—MACHINE SHOP, MAIN BUILDING, ALLIANCE MACHINE CO.

FIG. 3—ASSEMBLY DEPARTMENT, MAIN BUILDING, ALLIANCE MACHINE CO.

dows that they contain and despite the unusual width of the structure, the heating question has been satisfactorily solved. A double fan system has been installed which delivers a large volume of warm air, only 50 per cent of which is recirculated, the balance of the air being drawn in from the outside.

The power plant equipment has been increased by the addition of a direct-connected, slow speed engine and generator and a battery of 500-horsepower return tubular boilers. The length of the latter has been increased 25 per cent over the standard dimensions of this type, resulting in greatly increased efficiency. Fuel is delivered from drop bottom cars directly in front of the boilers.

A new pattern storage building of fireproof construction has also been erected and a novel pattern storage system for the location and identification of the patterns has been adopted. To afford additional space for the executive, engineering and business departments, a two-story addition 30 x 40 feet has been made to this structure. Side tracks into the plant provide direct connections with the Pennsylvania and the Lake Shore & Michigan Southern railroads. These tracks transverse one end of the building, affording excellent loading and unloading facilities.

The shipments from this plant average 16 cars weekly. During the recent boom, when it was difficult to secure cars and to reduce the number required for its shipments, a special study of the transportation problem was made involving the loading of cars, which resulted in their satisfactory loading above the minimum weight prescribed by the railroads.

Special Loading System.

By this system a car is loaded to its maximum limit. This is accomplished by a methodical division of the train into gondolas and flat cars, the latter being loaded with the trolleys and smaller parts. The single gondolas usually take a burden of from two to four girders except where the latter is too large or too long, when two or more flat cars are used and the load in this way is not increased above the maximum limit.

The methods of loading and making up of the trains for the company's shipments are shown in Figs. 1 and 4. A train of 19 cars, comprising the shipments made Dec. 24, is shown in Fig. 1. This consisted of eight traveling crane bridges and 10 trolleys, in addition to two 20-ton electric jib cranes for pipe foundry service. The average capacity of the cranes in this shipment was 24 tons, the smallest crane having a capacity of 5 tons and the largest were ladle cranes of 75 tons capacity.

Fig. 4 shows a shipment made on Dec. 31, requiring 18 cars. It consisted of 9 crane bridges and 12 trolleys. The average capacity of the cranes in this shipment was 29 tons, the smallest having a capacity of 10 tons and the largest 125 tons.

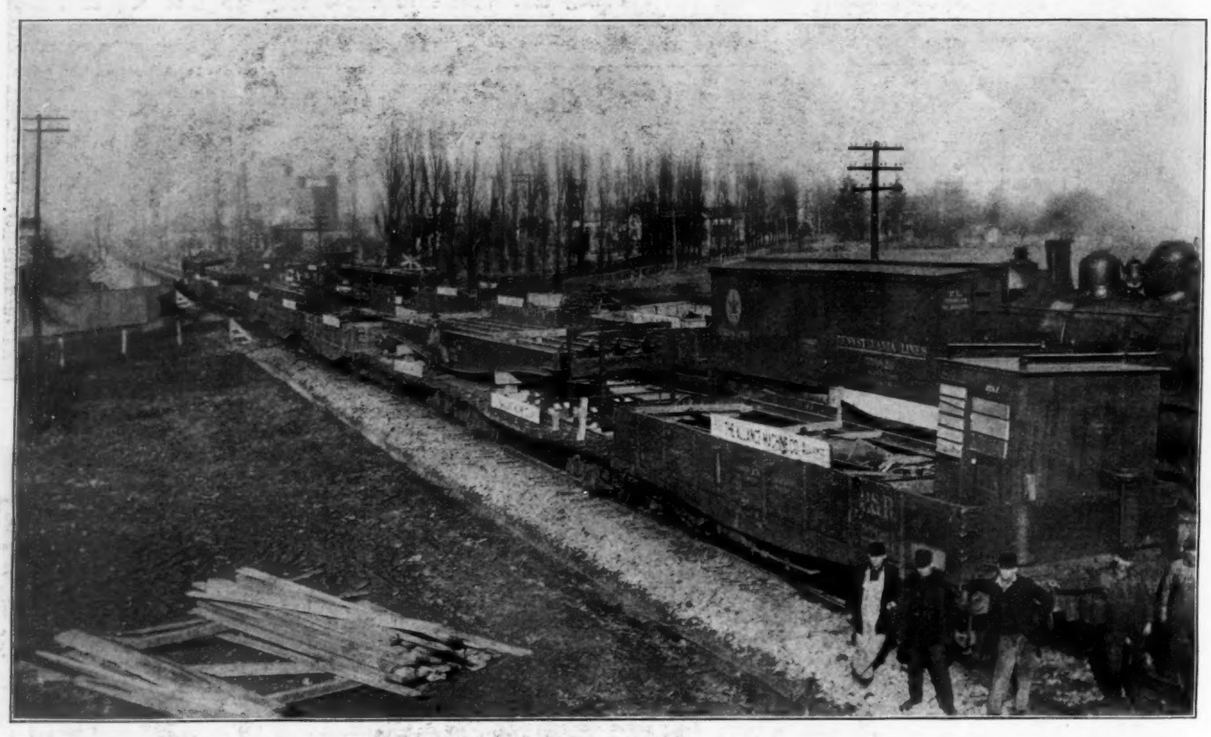


FIG. 4—SHIPMENT MADE DEC. 31, 18 CARS.

Strikers Apply for Work.—It is declared by employing founders of South Milwaukee that the strike of the molders' union, inaugurated May 1, 1906, has been called off so far as it applies to the Stowell Mfg. Co., and that 60 of the old employes applied for reinstatement this week. As their places had been filled, few were taken back. They came as individuals, and the company made no concessions. W. B. Rubin, who has represented the molders in the many cases of litigation arising in Milwaukee county and in the federal courts, denies the report flatly, and says the molders' union will continue its fight along the lines originally mapped out. At the Stowell plant, however, it is said that the men have applied for work. It has been frequently said by attorneys in the suits heard in Milwaukee that the city was looked upon as the key to the molders' strike situation of the country, and developments here have been watched with great interest.

THE CHUTE STEEL-MAKING PROCESS

Many ores carry such a high percentage of phosphorus that the pig iron made from them cannot be converted into steel by the Bessemer process, and of necessity open-hearth practice, to meet the constantly growing demand for steel products, has developed wonderfully in recent years. In the basic open-hearth process, the phosphorus can be eliminated almost entirely and steel can be made from phosphoric iron. Notwithstanding the fact that the problem of eliminating the phosphorus has been solved by the basic process, the elimination of the silicon presents many difficulties.

American ores are more silicious than those found in other steel-making countries, where the basic process is more extensively used. As the silicon in basic pig iron must be maintained at less than 1 per cent to conform to standard specifications, the smelting of these ores is more or less difficult by reason of the limits placed upon the silicon and sulphur contents. Silicon, however, does not reflect its presence in the finished product as much as phosphorus, but its effect is felt in the deterioration of the basic open-hearth furnace itself through undue cutting of the lining.

Smelting Silicious Ores.

The smelting problem confronting the blast furnace manager handling silicious ores is more complex than that of the smelter of Bessemer ores. In the first instance, distinctions are not so finely drawn in non-Bessemer ores with regard to their silica content owing to the less distinctive but more varied character of different grades of iron manufactured therefrom, so that the furnace manager has absolutely no choice and must do more mixing at the stack, but in the second case, the ores are selected before they are shipped to the furnace, due consideration being given to the phosphorus content.

Elimination of the Silicon.

It is a well established fact that when operating a blast furnace "hot" the sulphur can easily be eliminated through the slag, but the iron will contain a high percentage of silicon. On the other hand, if the furnace is run "cold" a vitreous, acid slag results and the iron is high consequently in sulphur. It is exceedingly difficult in treating phosphoric silicious ores to keep the product within defined limits, and the commercial success of the basic open-hearth process will not be complete until a solution is offered that will simplify the smelting of silicious ores and will permit of the production of a high silicon iron with a low sulphur content to be converted into a low silicon iron before it comes in contact with the basic open-hearth lining. When that is accomplished the work of the blast furnace manager will be simplified. With the silicon problem eliminated the furnace can be run hotter with the added assurance that the iron produced will contain a low percentage of sulphur even though the fuel may run high in sulphur.

Duplex System.

To solve this problem the duplex system, a combination of the Bessemer and open-hearth processes, was devised by Ossan in Germany. Iron may be used with good results containing a high percentage of silicon. This process consists of desiliconized high silicon iron in a Bessemer converter and subsequently charging this metal into a basic open-hearth furnace to dephosphorize and decarbonize the baths. With the silicon eliminated in the first step, the rest of the operation is carried on under normal open-hearth conditions. This process has been devised solely with a view to using silicious non-Bessemer ores and with high sulphurous fuel to eliminate the sulphur in the blast furnace by running it "hot," thus producing high silicon pig and then eliminating the silicon before it is brought into contact with the basic open-hearth lining.

By this method a good quality of steel is successfully made from silicious non-Bessemer ores, but it has certain disadvantages owing to the melting losses which are heavier than those of the ordinary open-hearth process. Some of these losses are unavoidable in a converter, to which must be added the usual shrinkage in the open-hearth. It also requires costly operating machinery in the Bessemer department, and entails complications that do not beset ordinary open-hearth methods.

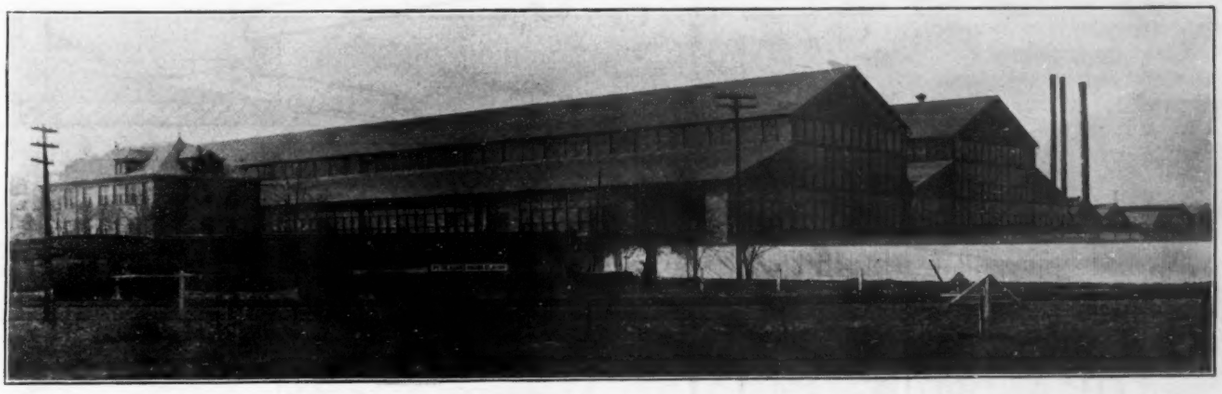


FIG. 5—GENERAL VIEW OF ALLIANCE MACHINE CO. PLANT.

The Chute Process.

To accomplish the same results attained by the duplex process, but in a simpler and much cheaper manner, and to increase rather than to decrease the amount of metal by the conversion of the iron into steel, a method has been evolved by H. O. Chute, Cleveland, who was recently allowed a patent on the same. This has been given serial No. 874,391 and has been acquired by the Metallurgical Development Co., 120 Liberty street, New York.

No costly machinery is required and the equipment necessary to carry out the work does not entail any additional expense other than the cost of the ordinary open-hearth. It can be applied in existing plants where the blast furnaces furnish direct metal to the open-hearth department. The losses in the duplex system, owing to the Bessemerizing of the charges, are entirely elim-

inated and a gain in the melt can readily be shown. The process is based upon the action of iron ore upon superheated pig iron of high silicon content.

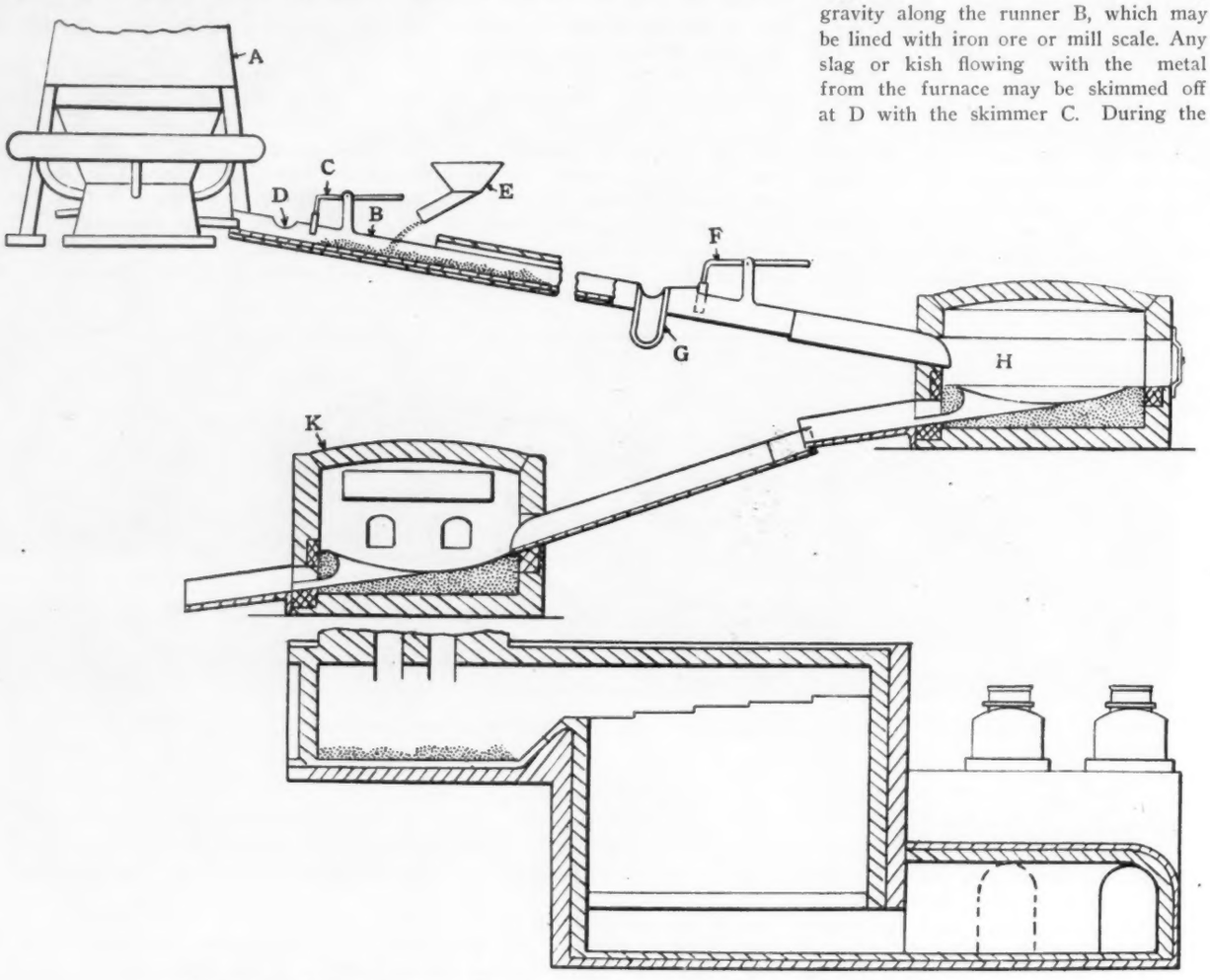
Addition of Powdered Ore.

During his extensive blast furnace experience, Mr. Chute discovered that by adding powdered ore to a stream of high silicon pig iron flowing in the blast furnaces, mixers and open-hearth furnaces.

Application of the Process.

In the blast furnace "A," phosphoric and silicious ores are smelted with a high fuel ratio to ensure the production of superheated iron carrying high silicon, thereby diverting the sulphur into the slag. The carbon content of the "hot" iron, which will be necessarily superheated. The term superheated, as used here, refers to a pig iron having a higher casting temperature than that at which it will simply melt, inasmuch as the reaction between the iron ore added and the silicon of the pig will not start at the fusing temperature.

When the superheated iron is tapped from the furnace it flows by gravity along the runner B, which may be lined with iron ore or mill scale. Any slag or kish flowing with the metal from the furnace may be skimmed off at D with the skimmer C. During the



Graphical Arrangement of Blast Furnace and Open-Hearth Plant Provided With a Mixer Showing Application of Chute Process.

runner to the pig beds that the silicon was removed and the pig iron converted from a gray to a white iron, while at the same time the percentage of manganese was reduced.

The importance of this process is accentuated in view of the difficulties encountered in the smelting of silicious ore in the manufacture of basic pig iron as it permits the blast furnace to be run "hot" with cheap fuel and to yield a grade of iron high in silicon. The latter element, however, can be removed before reaching the basic open-hearth. The operation of this process is shown in the accompanying illustration as applied to a plant provided with iron will be largely graphitic, and may be as high as in any ordinary basic metal. The percentage of phosphorus will depend upon the quantity charged with the ore, and the manganese content, while not fixed, will almost equal the amount charged, as it will be largely reduced from its ores, and the remainder will remove the sulphur dissolved in the slag in the form of manganese sulphide.

Assuming that the coke used contains a high percentage of sulphur, the sulphur in the iron will not exceed the percentage permitted in standard specifications. Under these conditions the smelting will yield what is known as a passage of the iron through runner B, fresh additions of ore may be made from the box or container E, or some other suitable device. Through the action of the ore in the runner B, and that added to the surface of the flowing metal, the oxidation of the silicon and manganese contained in it will result, and the cinder formed can be skimmed off at G by skimmer F. The same cinder may be subsequently recharged in the blast furnace. When the metal reaches the vessel H it will be in an ideal condition for treatment in the ordinary basic open-hearth. This vessel serves as a reservoir or mixer in which the desiliconized iron may be

held until it is transferred to the open-hearth furnace shown at K.

Mixer.

It is advisable to have this vessel as the open-hearth furnace may not be ready to tap at the same intervals as the blast furnace, and, therefore, provision should be made from which the metal may be drawn as required by the open-hearth department. This vessel may be heated or it may be operated without heating facilities, as the pig iron after passing through the trough and being subjected to the desiliconizing action of the iron ore will be hotter than when tapped from the blast furnace, owing to the reaction between the silicon and manganese in the pig, and the iron ore added produces an exothermic effect, which considerably raises the temperature of the treated metal. The installation of a reservoir, however, will depend largely on local conditions. If desired, the vessel may be heated by the waste gases from the blast furnaces.

Where the blast furnace and the open-hearth plant are not contiguous, but within reasonable distance of each other, for the vessel H may be substituted a ladle for the transfer of the charge of desiliconized metal to the basic open-hearth K. In this case the runner delivers the desiliconized metal directly into a ladle, and either transfers it to a mixer or a basic open-hearth plant. The reservoir or mixer will furthermore serve a useful purpose for the making of any corrections of the bath of the desiliconized metal that may be required.

The patent claims allowed are extremely broad and include "The process of making steel which consists in smelting non-Bessemer silicious ore under proper thermal and fluxing conditions to produce a superheated pig iron rich in silicon and phosphorus and a sulphurous slag contacting the superheated pig iron with sufficient oxide of iron to remove silicon and then treating the desiliconized iron by the basic open-hearth process to remove the phosphorus and carbon."

The contacting of the superheated pig iron with iron ore to remove silicon may be varied, as desired. It may be carried out in the blast furnace runner or it may be applied in a ladle of molten pig iron. Again, the treatment may be given in a mixer, the application of the process depends entirely upon the conditions surrounding the production of both the iron and the steel.

Chemical Reactions.

The chemical reactions of the process are expressed as follows:

(1) $3Si + 2Fe_2O_3 = 3SiO_2 + 4Fe$
(2) $6Mn + 2Fe_2O_3 = 6MnO + 4Fe$
(3) $3MnO + 3SiO_2 = 3MnSiO_3$

Every pound of silicon oxidized by this process yields 1 1/3 pounds of metallic iron and a further increase of the latter is brought about by the reaction of the iron ore upon the manganese content of the pig iron at a rate of two-thirds of a pound, assuming that enough ore is used to completely oxidize the silicon and manganese present in the pig iron.

The addition of iron ore can be regulated to bring within practical limits any desired reduction of silicon as well as manganese. The oxidizing action of the iron ore being selective, the total carbon content of the pig iron will not be greatly affected until the removal of the manganese and silicon has been accomplished, although it is immaterial how much carbon is removed as long as the iron retains the nature of pig iron, that is, easily liquified. The operation of the blast furnace will indicate the nature of the pig iron that may be expected, and, therefore, it is possible to gage the quantity that should be fed into the runner to reduce the silicon to any given percentage.

The Brooks works of the American Locomotive Co., at Dunkirk, N. Y., completed 625 locomotives during the year 1907, the largest single year's production in the history of the plant.

A MODERN SYSTEM OF PENSIONING AND INSURING EMPLOYES

In recognition of the faithfulness of its empolyes, a comprehensive system of benefits for the men upon its pay rolls has been evolved and put into effect by Deere & Co., Moline, Ill., manufacturers of steel plows. The plan has been carefully worked out according to the particular conditions prevailing in the company's line of production, and there is now in practical operation, a thorough method of dispensing financial aid among the deserving workmen of the institution.

There are two distinct features of the company's benefit system, the pensioning and the insuring of employes. The pension plan recognizes 65 years of which not less than 20 years have been spent in the service of the company, as the age qualification, for sharing in the fund. The minimum of $18 monthly is provided for any pension beneficiary and there is no financial obligation upon the employes to render them eligible for the bounty.

The system of insurance against death, accident and disability by ordinary illness, contemplates the payment by the men of assessments of 50 cents monthly or $6 annually. The benefit amounts to $1 daily for a period, varying according to the cause of disability with $100 for death from any cause.

The Pension System.

The complete outline of the company's pension system is as follows:

The administration of the pension fund shall, under the president of the company, be in charge of a pension board, consisting of five members or employes of the company, to be appointed annually by the board of directors to serve for the succeeding year and until their successors are appointed.

The pension board shall have, subject to this or further action by the board of directors, the following power and duties: To elect a chairman and secretary; to authorize the payment of such pension allowances as are provided for hereunder; to make and enforce rules for the efficient administration of the pension fund and to decide within the general limits prescribed by the board of directors such questions as may arise in connection with the pension system; any action by the board of pensions shall require the affirmative votes of at least three of its members.

Eligibility.

(a) All employes engaged in any capacity in the operations of the company who have reached the age of 65 years and have been 20 or more years continuously in the service, may be retired from active service and become eligible to a pension.

(b) Any employes who has been 10 years or more continuously in the service of the company and has, by reason of injury or sickness become totally incapacitated from further work for the company, may or may not receive aid from the pension fund, at the discretion of the company. If aid is granted, it shall be for such amount and for such a period as the pension board may determine.

(c) No person entering the employ of Deere & Co. later than the age of 45 years shall be eligible to a pension.

Allowances and Conditions.

(a) The annual pension allowance for each employe retired for age shall be as follows: For each year of active service, one (1) percentum of the average annual pay during the 10 years next preceding retirement, except that no pension shall be less than $18 per month.

(b) Pension allowances shall be paid monthly from the date of retirement until death, and, at the discretion of the pension board, allowances may, in exceptional cases, continue to widows or orphans for a further period, not exceeding one year.

(c) The acceptance of a pension shall not debar any retired employe from engaging in any business, which in the judgment of the pension board, is not prejudicial to the company.

(d) Assignment of pension allowances will not be permitted nor shall the same be taken for the pensioners' debts by garnishment or otherwise.

(e) Pension allowances may be suspended or terminated by the pension board in all cases of misconduct on the part of the beneficiary, of which misconduct the pension board shall be the sole judge.

Reserves Discharge Right.

Neither the action of the board of directors in establishing a system of pensions, nor any action hereafter taken by the pension board shall be construed as giving to any officer, agent, or employe of the company a right to be retained in its service, or any right or claim to any pension allowance, and the company expressly reserves the right and privilege to discharge at any time any officer, agent or employe when the interests of the company in its judgment may so require, without liability for any claim for a pension or other allowance other than salary or wages due and unpaid.

The pension board is composed of Messrs. B. F. Peek, Fred Cooper, G. W. Hixter, Geo. Wilson, secretary. And a fifth to be selected by these four from the shop.

Insurance Fund.

The company's announcement of its insurance plan stipulates the cost and payment of such benefits to all employes paid through the weekly pay rolls.

The benefits for every man in the employ of the company are as follows:

(a) One dollar per day for 12 months for disability due to accident received when not employed otherwise than by and for Deere & Co. Benefits claimed for accidents not occurring at Deere & Co.'s plant will be considered on their individual merits. Disability resulting directly or indirectly, from sunstroke, carbuncles, boils, abscesses, ulcers, blood poison or contact with poisonous substances or infectious substances, is not classed as due to accident.

(b) One dollar per day for 60 days for disability resulting directly or indirectly, wholly or in part, from paralysis, lumbago, lame back, sciatica, neurasthenia, dimentia, insanity, Bright's disease, tuberculosis, rheumatism, cancer or hernia.

(c) One dollar per day for 180 days for disability due to illness not venereal in character and not mentioned in paragraph (b).

(d) One hundred dollars on death from any cause. One-half benefits, as in A, B, C and D, to employes rated at less than 15 cents per hour.

(e) Free medical attendance not exceeding one visit per day by the company's doctors only, during the period covered by this insurance.

No benefits are payable until after one week's disability.

Accident benefits as in paragraph (a) are effective as soon as employe starts work with Deere & Co.

Sick benefits are payable only to men who have been employed by the company four weeks.

Death benefits are payable only in case of death of employe who has worked for the company six months, except in any case of death by accident in Deere & Co.'s works, the death benefit will be paid.

No benefits will be paid for loss of time or injuries resulting from intoxication, the use of narcotics, or while engaged in any unlawful or immoral act.

Physicians.

The emergency cases are to be handled by one physician. Any one of seven other physicians named may be called in case of illness.

Claims.

Claims will not be paid except on the certificate of one of the physicians named after he has had proper opportunity to watch and examine the case. Should other medical attendance be desired such expense must be paid by the patient.

Assessments.

In partial payment for this assurance, every man on the company's weekly pay rolls will be charged 50 cents on his first pay day of August, September, October, November, December, January, February, March, April and May, and $1 on the first pay day in June. Assessments one-half of this payment will be charged employes rated at less than 15 cents per hour.

THIS NOTICE MUST BE MAILED TO EMPLOYMENT AGENT DEERE & CO. WITHIN ONE WEEK OF DAY YOU QUIT WORK.

PRELIMINARY NOTICE OF DISABILITY

DEERE & CO. BENEFIT INSURANCE FUND

Date....., 190...

Name..... Check No.....

Injured or sick.....

Date quit work.....

How long do you expect to be sick.....

What work can you do.....

Any benefits from other sources.....

When did you first call doctor.....

Doctor's name.....

Name of disease.....

How long since last ill.....

FORM FOR PRELIMINARY NOTICE OF DISABILITY IN INSURANCE SYSTEM.

MAIL THIS REPORT TO EMPLOYMENT AGENT DEERE & CO. ON THE DAY YOU FIRST ARE CONSULTED.

DOCTOR'S PRELIMINARY REPORT

DEERE & CO. BENEFIT INSURANCE FUND

Date.....

Name of employee..... Check.....

Address where sick.....

Do you know he is the person disabled or sick.....

When first examined....., where.....

Nature of disability.....

What is the evidence of intoxication or immoral conduct.....

.....

Is the patient wholly disabled.....

How soon able to work.....

Has claimant any other source of benefits.....

FORM OF PRELIMINARY REPORT OF EXAMINING PHYSICIAN IN INSURANCE SYSTEM.

This insurance will start, subject to the conditions of paragraphs a, b, c and e, at the minute an employe starts work for this company and will cease the minute he leaves or is discharged from the company's service, excepting that the double assessment in June shall pay for continuing the benefits in paragraphs b, c, d and e, until the first pay day in August.

Notice, Proof and Payment.

"Notice of Disability," on the regular printed form, signed by the employe, must be sent to the employment agent, care Deere & Co., Moline, Ill., within one week of the day from which disability commences.

"Final Claim" on the regular printed form must be sent to the employment agent. On approval of the claim payment will be made by check, and receipt taken on the regular form.

Indemnity for loss of life shall be payable to the estate of the injured.

If the employe carries other sick and accident insurance, making a total indemnity in excess of the employe's regular wages, the company will pay in the case of such employe only such portion of the benefits in paragraphs a, b, c and e as his regular wages bear to the total indemnity.

Dishonest returns will cancel all benefits.

In all cases, the acceptance by an employe of the benefits herein provided for shall release all claims against the company for any liability on account of such injuries or sickness.

Insurance Receipt.

The form of receipt used by the company in the granting of insurance benefits is as follows:

Whereas, I,.....(Check No. ....) of the City of....., County ....., State of....., while in the employ of Deere & Company, was incapacitated for work for a period of ....days, following....., 1901, under circumstances which I claim render my employer liable, and have agreed to accept the benefits of the Deere & Company Benefit Insurance Fund, amounting to sum of..... Dollars ($....) .....

Now therefore, in consideration of the said sum, the receipt of which is hereby acknowledged, I do hereby release and forever discharge Deere & Company, its agents and employes from any and all liability by reason of all said injuries or disability.

Pickands, Mather & Co., Cleveland, will be the exclusive sales agents for the product of the new furnace just completed by the Jackson Iron & Steel Co., Jackson, O. This stack will have a daily capacity of 100 tons of high silicon iron. It is located so as to secure economy in handling raw materials, coal and ore mines being situated in a range of hills surrounding the plant. Although it is stated by the management that the furnace will not be blown in until pig iron conditions improve, a number of houses have already been erected in an industrial town, called Mineral Heights, adjacent to the plant.

BOOK REVIEWS

The Hydrometallurgy of Silver by Ottokar Holmann. New York. The Hill Publishing Co. 345 pages. Illustrated. 6¼ x 9½ inches. Cloth. Supplied by THE IRON TRADE REVIEW for $4.00.

This book marks a step in the right direction. The author states in his preface that it is not the result of compilation but of long years of experience and investigation.

In the first chapter, he points out clearly the theory of chloridizing complex metal sulphides, classifies the ores that may be sucessfully treated, and shows the various changes in composition that result from this method of treatment.

In the fourth chapter attention is directed to the causes of loss of silver by volatilization and shows how this reduction in value may be made a minimum. Chapter V discusses the different methods of roasting auriferous ores, various ores of silver, argentiferous blends and pyrites.

When sphalerite and galenite are subjected to a chloridizing roasting the sulphates of the metals are formed and these do not react upon the salt, but when iron pyrites is present the ferrous and ferric sulphates react energetically on the salt yielding nascent chlorine—the solvent for the silver content of the ore.

Chapter XII gives an entirely new and detailed summation of results obtained by Mr. Hofmann himself by the chloridizing roasting of highly calcareous silver ores in combination with argentiferous arsenical pyrites.

The second part of the treatise is devoted to the extraction of the silver from the chloridized ores through various processes. The silver may be precipitated

MAIL THIS REPORT TO EMPLOYMENT AGENT DEERE & CO. ON DAY CASE IS DISCHARGED.

DOCTOR'S FINAL REPORT

DEERE & CO. BENEFIT INSURANCE FUND

Name of employee ..... Check No. .....

Address where sick .....

Any other physician than yourself .....

When first called .....

Your office ..... or his home .....

Nature of illness .....

Acute ..... Chronic ..... Venereal .....

Patient in bed from ..... to ..... , or ..... days

Unable to work from ..... to ..... , or ..... days

Able to work .....

Has the man ever been afflicted with venereal, chronic or constitutional disease? .....

Any sign of intoxication before or during the illness? .....

Did patient use every effort to return to work as soon as possible? .....

General comment .....

Date .....

Physician for Deere & Co.

FORM USED BY EXAMINING PHYSICIAN IN REPORTING AN APPLICANT FOR INSURANCE BENEFIT.

from the base-metal solution by milk of lime, calcium or sodium sulphide, cement copper, or water. The last method was first used by Mr. Hofmann and is the cheapest of all. After the removal of the base-metals by precipitation and the residue is treated with a very dilute solution of sodium thiosulphate, a solvent for the silver, and from the resulting solution the silver is precipitated by calcium sulphide.

The final chapter (XXIII) contains a very important discussion of the cyanidation of auriferous silver ores. The entire work, in two parts, containing 345 pages of highly instructive data, should be in the hands of all students of metallurgy and all practical metallurgists, for issuing from the pen of one with so varied experience as that of Mr. Hofmann the book will prove of great value to all.

"At the Works," by Lady Bell. London. Edward Arnold. Longmans, Green & Co., New York, agents in the United States. 272 pages. 5 x 7¾ inches. Cloth binding. Supplied by THE IRON TRADE REVIEW for $2.

Lady Bell, wife of Sir Hugh Bell, has given to the public in this work a minute and detailed story of the daily life of the workman in the typical iron trade towns of England. Her observations, which are grounded upon a thorough and intimate contact, extending over many years, with the large population of iron workers in the north of Yorkshire, exploit the many problems which beset the health, happiness and very existence of the workmen. As the reader is led into the homes of these employes, and has clearly brought before him the inner life of the household, he is struck by the limitations surrounding the English laboring class in the iron industry. The meager percentage of earnings that remains over the maintenance of a bare existence for the average workman, as a protection against sickness and misfortune, constantly demands the utmost frugality and economy on the part of the wife or housekeeper, the writer shows. The ingenious management needed to net any additional, though small, convenience for this absolute standard of mere-continued existence emphasizes the somber position of the class. As Lady Bell announces her endeavor to do, she has expressed the English iron industry in terms of human beings and the result is an impressive pen picture of a great body of people pursuing their daily way, rearing families and providing for their mental and physical needs, almost upon the very border land of poverty, yet solving the problems of their domestic life and apparently satisfied with their lot. There is a humane side to the study shown in the tie of workman to workman and family to family; in the care of the aged and infirm by those who still retain their wage-earning capacity; and in the solicitude for the unfortunate of the community, that commands the approving interest of the reader. "At the Works" is written in a bright and entertaining style and is a warm plea for sympathy and understanding by those more happily situated of the lives of this branch of England's working class. It is illustrated by various views of iron-making operations in English works.

DEERE & COMPANY
PENSION DEPARTMENT

APPLICATION FOR PENSION
WITH PERSONAL RECORD

Date ..... , 190...

To the Board of Pensions, Deere & Company, Moline, Illinois:

I make the following record of my service with Deere & Company as a basis for being placed on the Pension Roll:

Name in full ..... Address .....

Employed at present in Dept. ..... Day rate ..... Average earnings per week .....

Married ..... Children ..... Date of entering service .....

Date of birth ..... Place of birth .....

RECORD OF CONTINUOUS EMPLOYMENT IN SERVICE OF THE COMPANY AND AVERAGE EARNINGS PER WEEK

DATE OF EMPLOYMENT		DEPARTMENT	OCCUPATION	AVERAGE EARNINGS	APPROVAL
FROM	TO			To be checked against pay roll.	Leave blank.

FORM USED BY APPLICANT FOR PARTICIPATION IN PENSION FUND.

ZINC INDUSTRY

Enjoyed a Very Successful Year in 1906.

An unusually successful year was enjoyed by the zinc industry throughout the world in all its branches from mining to manufacture, according to the report of the United States Geological Survey, covering the production of this metal in the United States during the year.

An unprecedented demand for spelter and pigment drove the price steadily upward, and thus encouraged active development of resources and expansion of reduction capacity. Zinc resources hitherto valueless, including abandoned veins, old dumps, accumulations of tailings, as well as newly discovered deposits, have been actively exploited. Following the successful outcome of experiments in various methods of ore dressing and valuable improvements on old methods, a number of new mills have been built, considerable additions to old ones have been made, and milling practice in general has been refined. Several new smelters are now in process of erection, and the capacity of old plants has been notably increased, so that at the close of 1906 the capacity for milling and smelting was much larger than in 1905, and will be added to considerably during 1907.

Further improvements in concentration, separation, and smelting are most desirable in order to attain higher recovery and lower costs. The industry has experienced comparatively little inconvenience from labor troubles, but car shortages in the Rocky mountains somewhat reduced the output, while fuel shortage in the extreme northwest seriously hampered operations for a considerable period of time.

The result of these various activities has been greatly to increase production. The United States added much to its production as well as to its consumption, leading the countries of the world in consumption, and falling short by only a few thousand tons of leading Germany in production.

The production of spelter (crude metallic zinc) in the United States in 1906 was 224,770 short tons. This production, which includes 25,076 tons of spelter obtained from the smelting of foreign ores, shows an increase of 20,921 tons, or 10.3 per cent over the preceding year, and is the largest

production in the history of the industry. The exact annual progress of the production in the United States in short tons is indicated in the following table:

YEAR.	TONS.	YEAR.	TONS.
1873.....	7,343	1893.....	78,832
1875.....	15,833	1894.....	75,328
1880.....	23,239	1895.....	89,686
1882.....	33,765	1896.....	81,499
1883.....	36,872	1897.....	99,980
1884.....	38,544	1898.....	115,399
1885.....	40,688	1899.....	129,051
1886.....	42,641	1900.....	123,886
1887.....	50,340	1901.....	140,822
1888.....	55,903	1902.....	156,927
1889.....	58,860	1903.....	159,219
1890.....	63,683	1904.....	186,702
1891.....	80,873	1905.....	203,849
1892.....	87,260	1906.....	224,770

Future of Industry.

In the immediate future, and until accumulated ores shall be exhausted, the production of zinc will readily meet all demands for consumption, and the market may be temporarily sated, says the report. Foreign ore production and cheap smelting tend to supply foreign consumption and to prevent export from this country and may possibly cause a slight falling off in prices. Following the present period of extraordinary activity, however, and in a relatively short time, normal conditions will obtain.

In the long run, continued increase in the use of zinc promises to outrun the present great increase in production, and as consumption thus presses upon production again it is believed that prices will gradually rise and render the zinc industry an increasingly profitable field for enterprise.

IRON AND STEEL OUTLOOK IN FRANCE.

In answer to inquiries from the United States, Consul General Robert P. Skinner, of Marseille, furnishes the following information concerning the outlook for American metal roofing, wire, and merchant iron and steel in France.

The outlook is very favorable for American metal goods in France, in spite of the rates of duty which tend to keep out all foreign metal goods and which fall with especial severity on American products, as the latter are subject to the maximum schedules. Upon imports of iron and steel American manufacturers must pay in France a rate of duty varying from 38.6 cents to $1.93 per 220 pounds more than is imposed on similar goods imported from other countries, and our manufacturers must overcome this first barrier to the extension of their business before proceeding further.

While few foreign manufacturers of iron and steel are now doing business in France, there are times when they can do so, and they are always in a position, prices and qualities being equal, to share in the very considerable French export business to neutral markets, which is controlled by various wholesale firms in this country. There is a steady demand for corrugated sheets for roofing purposes for re-export or for direct shipment to Morocco, the west coast of Africa, and the Levant, and the same is true of barbed wire, nails, and indeed almost every class of ironmongery. One of my informants, with a total annual trade in such goods of $5,000,000, has a branch at Antwerp, whose operations are limited to receiving and forwarding imported materials. This one concern can absorb from 200 to 250 tons of corrugated sheets at Marseille annually and has also a large trade through its branches at Lyon and Nice, and at Hanoi, Saigon, and Haiphong (French China). Metal sheets are wanted 78.7 inches by 29.53 inches and 0.0195-inch in thickness. Roofing of this kind is now worth $9.84 per 220 pounds in Marseille, and to be attractive for French consumption must be offered at around $8.88, delivered, in terms which would include, of course, freight and $2.70 or $2.89 duty, according to thickness.

Barbed wire is worth 48 cents to 58 cents per 100 meters (109.36 yards), and the rate of duty is $2.89 or $5.79 per 220 pounds, according to diameter.

Owing to the cheapness and, from some points of view, superiority of earthen tiles for roofing purposes, very little metal roofing finds a sale for use in this particular region, but there is an increasing demand for it in Africa, where the methods of transportation cause a great deal of breakage ordinarily of earthen tiles, and where the difficulty encountered in obtaining intelligent labor makes it necessary to use materials that are indestructible and easily applied.

The imports of iron of all classes into France in 1905 and 1906 were 17,632 tons and 26,351 tons, respectively. All but 527 and 400 tons, respectively, were imported from the United Kingdom. The imports in 1906 included the following in tons: Thin sheet iron, 4,580; sheet iron more than 0.0234-inch in thickness, 1,600; steel rails, 2,571; steel wire, 3,982; billets, 11,014; hot-rolled sheet steel, 2,440; cold-rolled sheet steel, 715; fine tool steel, 2,394; axles and tires, 734. [A list of dealers which accompanied Consul General Skinner's report is on file in the Bureau of Manufactures, where it may be consulted by interested parties.]

MAIL THIS REPORT TO EMPLOYMENT AGENT DEERE & CO.

CLAIM FOR BENEFIT

DEERE & CO. BENEFIT INSURANCE FUND

Date....., 190...

Name.....

Check No.....

[Leave this space blank.] APPROVAL

Married..... Children.....

Address where ill.....

Nature of illness.....

Date quit work.....

Date first confined to house.....

Date confined to bed.....

Date first able to move about house.....

Date first able to leave house.....

Date of resuming work.....

Name of Company's physician.....

Any other physician.....

To what extent do you use beer or liquor.....

Any benefits from other source.....

How long in service of Deere & Co.....

Signed..... Employee

Employee, leave this blank.

The above employee has paid the..... rate of assessment and I recommend

..... days benefit, $.....

Approved:..... Employment Agent.

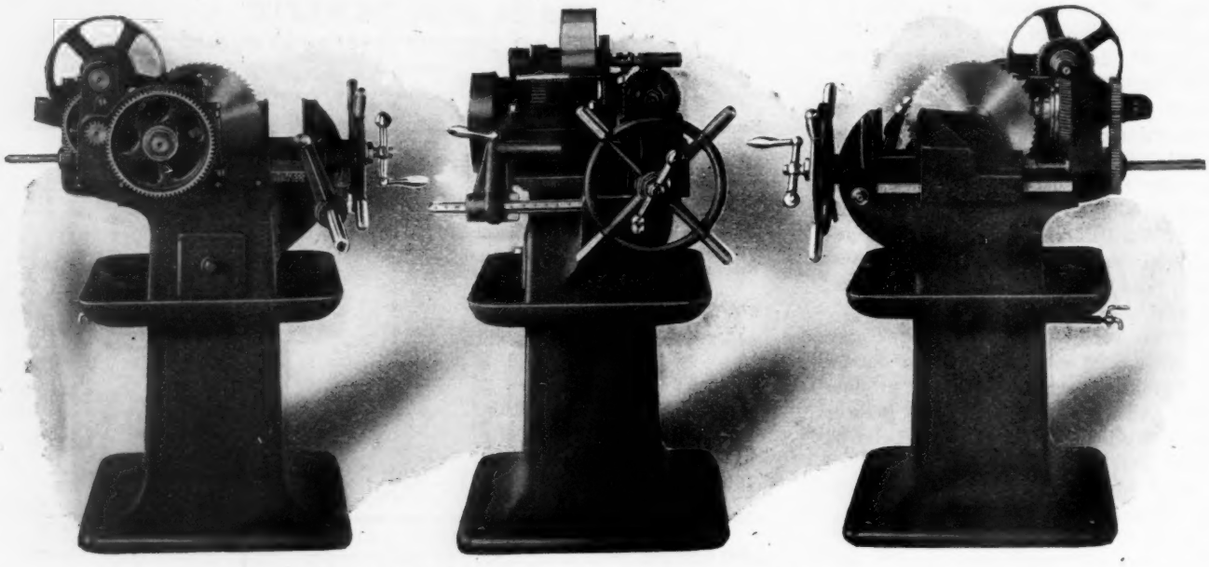
Superintendent or Cashier.

Paid by benefit check No.....

CLAIM FORM USED BY APPLICANT FOR PARTICIPATION IN INSURANCE BENEFITS.

NEW METAL SAW.

The accompanying illustration shows in all its aspects the new 4½-inch metal saw, built by the Smith & Post Co., Milwaukee. It will handle material up to 4 inches diameter at one cut; larger than this, up to 8 inches, must be turned over and a second or third cut taken as the size may require. Endeavor has been made in designing this tool to provide a strong, compact machine which will also take care of the chips from the sawing operation and permit of the convenient handling of material. The saw blade, which is 13 inches diameter, is driven by spur gears, with a ratio approximately 21½:1, and the driving mechanism is so arranged that the machine will stand parallel to the line shafting of the shop. The driving pinions are solid with the shafts, and the vise for holding the piece is faced with hardened steel jaws and has an 8-inch opening. The feed is about ½-inch per revolution of the saw, and at this rate should cut anything smaller than 3½ inches without slipping the friction. For larger work, an automatic slip of the feed friction adjusts the feed to the size of the piece being cut or to the dullness of the saw. A handle near the top of the machine controls the feed, and the design of the saw permits the operator to check the feed by hand with the power feed in gear. It provides for quick return under power, also assisted by the hand wheel shown. The box type of stand is used, and the hollow top of the column is filled with oil, into which the cuttings fall, so that when full of chips, they can be easily cleaned out through the side door shown in one view. The entire machine weighs in the neighborhood of 1,000 pounds, and is provided with a wrench which fits all nuts and screws. The countershaft has tight and loose pulleys 11 inches diameter with 3-inch face, and should be run about 210 revolutions per minute.



A New Metal Saw Built by Smith & Post.

Belgium's Mineral Output.—Consul-General Ethelbert Watts, of Brussels, supplies the following information regarding the mineral production of Belgium: The total output of coal in the provinces of Hainaut, Namur and Liege during 1906 amounted to 23,569,860 tons, valued at $68,220,038, against 21,775,280 tons, worth $53,195,048 in 1905. The production of coke in the Hainaut and Liege provinces during 1906 amounted to 2,414,490 tons, valued at $11,031,309. In the three provinces there were produced during the year 1,887,090 tons of briquets, valued at $6,874,750, and the smelting furnaces turned out 1,199,245 tons of iron and steel, worth $16,973,736. There were 10 zinc works in operation in the province of Liege in 1906, producing 728,620 tons of the raw material, valued at $16,510,626. The 42 iron and steel works in the three provinces produced 1,767,350 tons of the finished product, valued at $35,195,681. The lead production in the province of Liege in 1906 amounted to 16,390 tons, worth $1,326,653, and silver produced was valued at $793,597.

AN UNUSUALLY LARGE PIPE MACHINE OF NEW DESIGN.

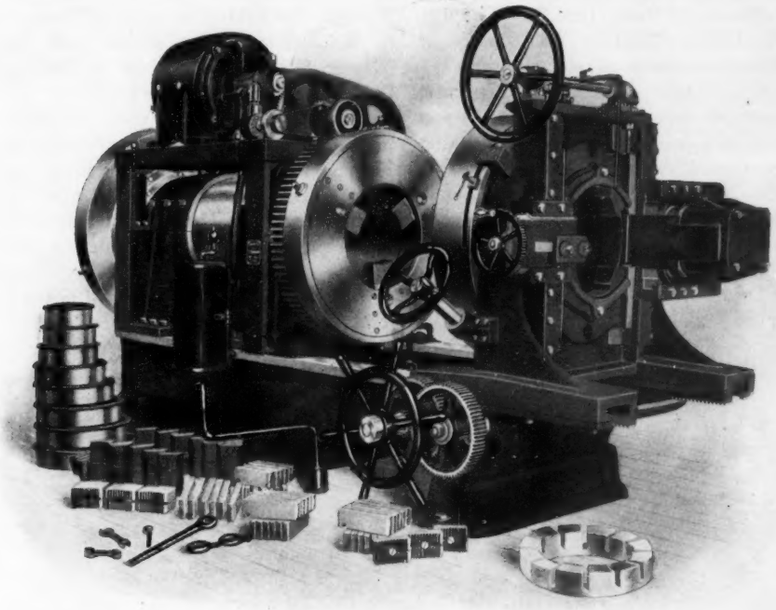
The accompanying illustration shows the largest of nine newly designed pipe machines being manufactured by Crane Co., Chicago, the entire line of machines handling pipe from ⅜ inch to 18 inches diameter. This machine, known as No. 6, has a capacity from 8 to 18 inches and is designed for high speed threading and heavy work. The tool can be furnished with belt or motor drive and speed changes are made entirely by means of gears.

The die head is of the sliding type controlled by a hand wheel and gears and equipped with adjustable expanding dies operated by an internal cam. For cutting pipe below 12-inch an extension die head is provided which stiffens the dies and prevents their bending. The dies are made of high speed steel, are extra long and will cut threads for extra heavy flanges or fittings with an accurate taper. Adjustment of the dies is accomplished by means of a hand wheel operating a worm and segment and the cutters may be removed by taking off the cover of the die head. Casing dies can be obtained with the machine when so desired.

For guiding pipe when cutting off, an arrangement has been devised consisting of two guides moving in slides on the die head bracket which also supports the slide for the cutting off tool. These guides are operated by right and left hand screws and contain recesses for carrying chilled shoes which bear on the circumference of

the pipe and can be easily and quickly removed when any change in the pipe is desired.

The equipment of the machine also includes a device for rolling pipe perfectly round, consisting of a series of hardened tool steel rolls, screw operated. This provision enhances the accuracy, speed and capacity of the tool and avoids the necessity of hammering the pipe. The spindle contains two independent three-jaw gripping chucks. The front chuck jaws have ferro-steel bodies with high grade hardened tool steel faces which are in two lengths and are removable for sharpening. One length will grip pipe from 8 to 12-inch, the other from 12 to 18-inch.



CRANE CO. PIPE MACHINE.

The rear chuck jaw holders are of high grade cast steel, so arranged that either pipe or flanges may be gripped and are also equipped with removable hardened tool steel faces. The chuck contains indicators for setting the jaws. Some of the sizes of the machine are as follows:

Countershaft Pulley—Diam., 18 inches; face, 8½ inches.
Countershaft Speed—210 revolutions per minute.
Weight—15,000 pounds.
Floor Space—11 feet 5¼ inches by 5 feet 2¾ inches.

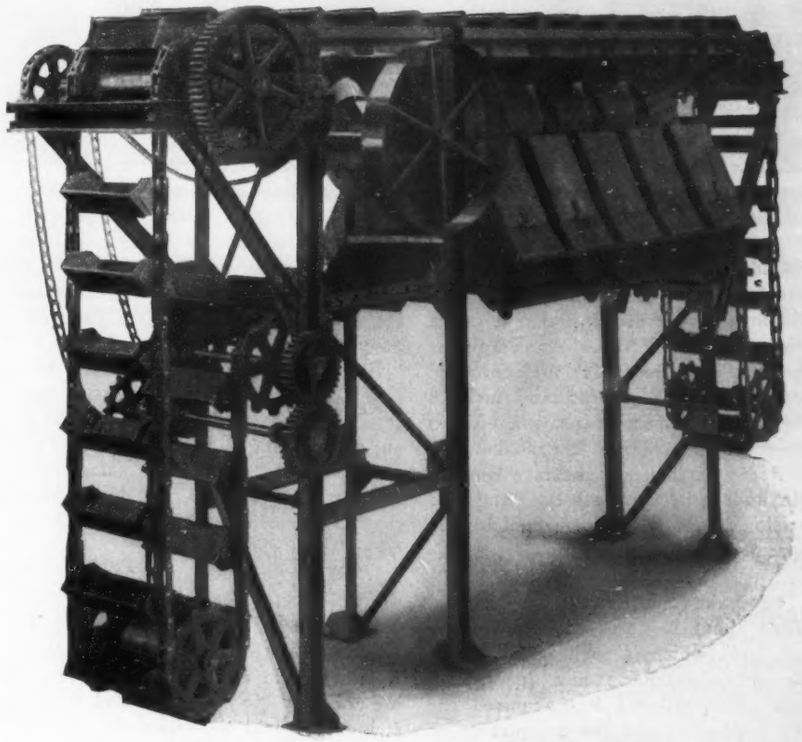
To Pay Interest.—The receivers of Milliken Bros., Inc., have been authorized by court order to pay the interest falling due Feb. 1, 1908, on the $3,000,000 6 per cent bonds outstanding. The receivers have done exceedingly well with the Milliken properties, having no receivers' certificates outstanding.

FOUNDRY ELEVATING AND SCREENING MACHINE.

The Stephens-Adamson Mfg. Co., Aurora, Ill., recently designed and built for a steel foundry the machine shown in the accompanying illustration. It is a device intended to effect a large saving in labor as applied to the elevating and screening of sand used in large molding machines. In outline it is an endless chain bucket elevator and conveyor by which the sand is scooped from the pile on the floor and raised into a series of hoppers ready for use as required, having been screened in the meantime. For this operation only one attendant is necessary and the control of the entire machine is easily accomplished by him.

The buckets are 12 x 24-inch, of the gravity discharge type and hung on a steel roller chain which has an idler end at the rear of the machine so that as the pile of sand decreases in height the digging end of the conveyor may be lowered the required amount by the operator, by taking up some of the idler slack. A heavy cast iron digging drum is mounted on the chain sprocket shaft at the digging end and it is lowered to the sand by means of a friction mechanism.

The buckets empty into a trough above the screens. Gates in this trough distribute the sand evenly to the screens where nails and pieces of iron are removed from the sand, the rejections being discharged on one side and the sand on the other into the hoppers which connect with the molding machine. The machine already built has a vertical lift of 14 feet



FOUNDRY ELEVATING AND SCREENING MACHINE.

and a horizontal conveying length of 21 feet.

The machine elevates and screens 120 tons of sand per hour. It is operated by an individual motor, is self-contained and can be modified to handle and screen other materials as well as sand.

Entertains Salesmen.—As a climax to the second annual convention of the commercial salesmen of the Berger Mfg. Co., Canton, O., a sumptuous banquet was tendered the representatives of the company at the Courtland hotel, Canton recently. Sixty-three of the men who solicit business for the company in all parts of the United States were present as guests of honor of their employers at the banquet. Following the serving of an elaborate menu a toast list of topics of mutual interest to the employers and salesmen was presented. F. A. Schwertner acted as toastmaster, and the responses were as follows: "What of 1908," Edward A. Langenbach; "Twenty Years' Progress," R. H. Yancey; "Our Salesman," E. A. Enlow; "Our Factory," C. A. Irwin; "Courage and Confidence," William Langenbach; "Impressions," Fred A. Snyder; "Our Everyday Duties," A. E. Hochwalt. Informal talks were also given. The principal feature of the evening's pleasure was the presentation to Edward Langenbach, general manager of the Berger company, of a handsome hall clock of colonial pattern. A neat souvenir program of the banquet, specially prepared, contained as a frontispiece the photograph of Mr. Langenbach above the inscription, "Our Chief and Leader."

Holds Strike Criminal.—The Austrian supreme court at Vienna has held in a recent decision that a strike is a criminal offense. An employer meeting with loss by the enforced stopping of his operations sued 16 strikers for recompensation. Two lower courts held that the strike constituted a breach of contract punishable under the criminal law, and this decision has now been affirmed by the supreme court.

The Lake Shore railroad has acquired about 25 acres of land at Elkhart, Ind., which is to be used as the site of an extensive new locomotive shop. The railroad has acquired the land gradually, and the completion of the project for new shop construction may not be brought about in the immediate future as definite plans for the improvement have not been provided.

EXTENSIVE SHOPS

Completed for Traction System—Industrial News of Indiana.

(Special Correspondence.)

Indianapolis, Ind., Jan. 21.—The Indiana Union Traction Co., operating a 300-mile system of electric railways north and east of this city, has just completed repair shops at Anderson which are said to be among the largest and best equipped of their kind in the country. The main building, which is 350 x 481 feet, contains 18 tracks; the repair car storage machine shop is 140 x 192 feet; the wood working shop 60 x 103 feet; erection room 54 x 240 feet; paint shop 54 x 241 feet; inspection department 60 x 70 feet; store room 80 x 112 feet; brass foundry and tin shop 50 x 50 feet; lumber sheds 25 x 96 feet, and the oil house 15 x 60 feet. The mechanical equipment includes a 15-ton traveling crane, four 5-ton cranes, all operated by electricity; power hammer, wheel turning lathe, 16-foot bed planer, 200-ton wheel press, two power saws, bolt threading machine, heavy shaper for metal, one 36-inch engine lathe, four 24-inch lathes, one 14-inch tool lathe, four drill presses, one tapping machine, and winding machines.

S. K. Ruick, C. J. Rucker and J. E. Rocap are directors in the Zenith Metal Co., which has just been incorporated here with $5,000 capital stock. The company will manufacture metal bearings.

The St. Clair Air Brake Co. of this city has increased the number of shares of its capital stock from 1,000 to 25,000 shares. Part of the additional capital will be used in extending the company's work, while A. A. St. Clair will receive part of the stock for surrendering patents to the company.

Experts employed by the Gary Steel Co., Gary, are making extensive land tests for stone between Ellettsville and Stinesville. Recently the company obtained options on 500 acres of land in that vicinity. It is expected that 300 carloads of stone can be taken from the land daily.

J. E. Troyer, bridge expert for the Central States Bridge Co., has estimated that it will cost $17,000 to repair the Virginia avenue viaduct in this city. An entire new floor requiring 72 new floor beams and several stringers would be necessary.

The state board of agriculture has decided to erect a new building at the state fair grounds, north of the city, which will be devoted exclusively to the exhibit of machinery. It will cover five acres of ground and enough power will be available to operate every machine exhibited.

Arrangements have been completed by the Industrial Gas Mfg. Co., of Elwood, for taking over the Diamond & Mackenzie boiler works and the Elwood Foundry & Heating Supply Co. in that city. The plant of the latter company will be used for making apparatus for producing chemically pure gas, after patterns made by Gustav Saaler of Leipsic, Germany. It is expected that sufficient improvements will have been made in the plant in ninety days to begin operations with a force of about 100 men. The new company has been incorporated with $150,000 capital stock.

Program Announced.—An elaborate program has been prepared for the meeting of the National Society for the Promotion of Industrial Education to be held in Chicago Jan. 23, 24 and 25. The meeting will open with a public dinner at the Auditorium hotel, Jan. 23, at 6:30 o'clock, at which Theodore W. Robinson, first vice president of the Illinois Steel Co., will act as toastmaster. Among the speakers on the topic, "Industrial Education as an Essential Factor in Our National Prosperity," will be James W. Van Cleave, president of the National Association of Manufacturers. The following morning the first public meeting will be held at the Art Institute when W. R. Warner, of the Warner & Swasey Co., Cleveland, will speak on "The Apprenticeship System of Today." A general discussion on the topic, "The Apprenticeship System as a Means of Promoting Industrial Efficiency," will be participated in by E. P. Bullard, president of the Bullard Machine Co., Bridgeport, Conn., and Charles W. Price, of the International Harvester Co., Chicago. The annual election of officers of the society will be held Saturday afternoon.

Receiver for Furnace.—Capt. W. P. Lay has been appointed receiver for the stock, such as raw material, etc., of the Quinn Furnace Co., at Gadsden, Ala., on a petition filed by local mortgage creditors, including the Gadsden National bank. The entire indebtedness of the company is estimated at less than $16,000. The Quinn Furnace Co. is headed by St. Louis parties and charcoal iron is manufactured. The stack is a small one, less than 100 tons of iron being manufactured when the furnace is in blast. It is understood that the difficulties reported will be overcome in the near future and the legal troubles will be brought to a close.

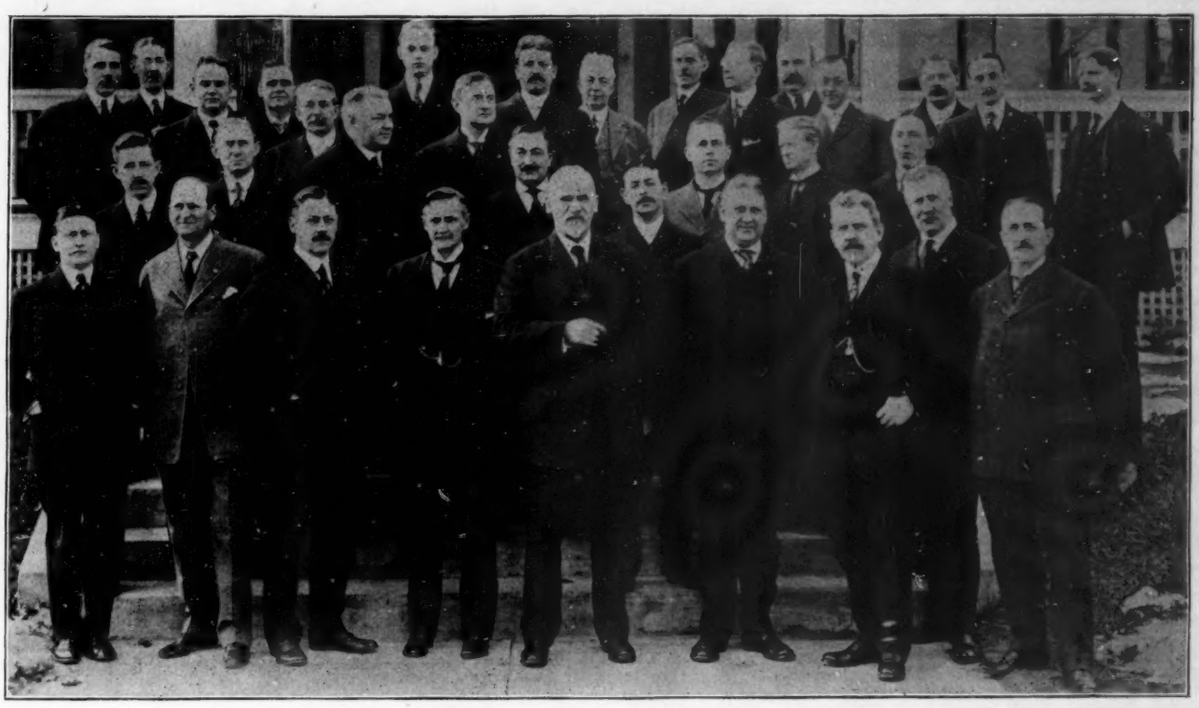
BRIGHT OUTLOOK

Reported by Allis-Chalmers Managers in Conference.

Milwaukee, Wis., Jan. 20.—The heads of branch offices of the Allis-Chalmers Co., representing practically every important business center of the country, met at the home office in Milwaukee last week, the photograph of the group, from which the accompanying cut was made, having been taken at the Allis-Chalmers club house at West Allis. The meeting was the largest of its kind ever held in Milwaukee. The salesmen were practically unanimous in their belief that the business outlook for the year was excellent and that stocks were so low as to make a buying movement a probability of the near future.

The visitors were given a dinner at the Hotel Pfister Wednesday evening, President W. H. Whiteside presiding. The party included the following:

F. C. Colwell, manager Cincinnati district office.
J. U. Jones, manager Dallas district office.
E. T. Pardee, manager Boston district office.
M. W. Thomas, manager Atlanta district office.
J. F. Harrison, manager flour mill department.
B. A. Behrend, chief electrical engineer.
J. W. Gardner, manager Chicago district office.
J. Weidman Murray, manager Pittsburg district office.
W. L. Loveland, manager mining machinery department.
St. John Chilton, manager Philadelphia district office.
F. L. Bunton, manager St. Louis district office.
F. C. Randall, manager New York district office.
Roscoe Cornell, manager El Paso district office.
Geo. A. Williams, manager Cleveland district office.
P. H. Carey, manager Detroit district office.
C. R. Tatem, manager Buffalo district office.
H. D. Scribner, manager San Francisco district office.
A. E. Mosier, manager Kansas City district office.
A. H. Whiteside, manager electrical department.
R. B. McConney, manager Denver district office.
L. M. Harvey, manager Milwaukee branch office.
E. T. Adams, manager gas engine department.
J. H. Denton, manager air brake department.
I. L. Skeith, manager saw mill department.
M. C. Miller, assistant to the president.
W. J. Sando, manager pumping engine and hydraulic turbine departments.
W. E. Dodds, manager steam engine department.
J. C. M. Lucas, manager Baltimore district office.
H. Schifflin, manager crushing and cement making machinery department.
W. H. Powell, superintendent electrical works.
J. R. Jeffrey, secretary Bullock Electrical Mfg. Co.



ALLIS-CHALMERS BRANCH OFFICE MANAGERS GROUPED BEFORE COMPANY'S CLUB HOUSE.

SECOND EXHIBIT PLANNED.

The second annual exhibit of the Chicago foundry foremen will be held at the Lewis Institute, Chicago, March 5, 6 and 7. At the recent meeting of the Chicago foremen, at which the dates for the exhibit were fixed, it was also determined to hold a foundry foremen's convention in connection. This will consist of day and evening meetings with papers and discussions on topics of general interest to foremen. The recent canvass of the companies who displayed machines and tools at the last exhibit in April, has been very encouraging, all the companies with but one exception, agreeing to be represented again this year. The last exhibit was held in the foundry of the institute, but it is expected that considerable more space will be given for the display this year. Heavy molding machines, pneumatic tools and oil furnaces will be placed in the basement laboratories; pattern-makers' tools and core machines will occupy the mechanical laboratories on the second floor, while hand power molding machines and the lighter power machines will be placed in the foundry on the sixth floor of the engineering building of the institute. A feature of the exhibit will be the pouring of molds made during the convention. Heats will be made daily in the school cupolas. C. E. Hoyt, Madison and Robey streets, secretary of the Chicago Foundrymen's Association, has charge of the setting up of exhibits.

Would Prevent Accidents.—Thomas D. West, Sharpsville, Pa., has undertaken the organization of a society for the prevention of accidents at Sharpsville. It is the hope of the originator that the society will grow to become a strong factor in decreasing fatalities and injuries by accident. At the recent meeting of the Philadelphia Foundrymen's Association, Mr. West discussed fully the "Dire Cost of, and Best Remedy for, Carelessness in the Foundry, Shop, Transportation and Traveling."

DECISION UPHELD

In Dominion Litigation in Behalf of Steel Company—Canadian News.

(Special Correspondence.)

Toronto, Jan. 20.—The supreme court of Nova Scotia on Jan. 14 announced its decision in the case of the Dominion Iron & Steel Co. against the Dominion Coal Co., upholding the judgment of the lower court in favor the steel company and discussing the appeal. The decision, which turned upon the interpretation of the contract between the companies for the supply of coal to the steel company, is based on the ground that there was an express contract for the supply of coal which should be suitable for steel-making purposes. Damages for the injury sustained, to be assessed as suggested in the decision appealed from, are awarded, and a decree will issue compelling specific performance by the coal company. A further appeal will be taken either to the Canadian supreme court or to the British Privy Council.

During the first nine months of 1907, the Canadian government paid $1,299,000 in bounties to iron and steel manufacturers. The Algoma Steel Co. drew $348,000, the Dominion Iron & Steel Co., $699,000, the Nova Scotia Steel & Coal Co., $93,000, and the Hamilton Steel & Iron Co., $125,000.

The steel plant of the Algoma Steel Co. at Sault Ste. Marie was closed down Jan. 17 until further notice on account of a shortage of pig iron. A number of necessary repairs, which must have been made shortly in any case, will be undertaken. The blast funaces are not affected and will run at their full capacity.

The Canadian Pacific railway has placed a contract with the Dominion Car & Foundry Co. of Montreal, for 400 composite steel and wood freight and ballast cars. The contract for the steel required in their construction has been awarded to the Nova Scotia Steel Co., of New Glasgow, N. S.

Judge Riddell has granted an order to wind up the affairs of the Toronto & Belleville Rolling Mills, Ltd., appointing James Hardy interim liquidator. The total indebtedness amounts to about $300,000, including $102,000 unsecured claims.

The Collingwood Ship Building Co. of Collingwood, Ont., has closed down its plant on account of a disagreement with its employes respecting wages. The company recently notified the men of a reduction of 15 per cent, but the latter refused to accept and quit work. About 400 men are affected. It is announced that the plant may be reopened about the middle of March for some repair work.

The Hamilton Steel & Iron Co., Hamilton, Ont., has been reorganized and the capital increased from $1,513,600 to $5,000,000 by a new issue of stock which is divided among the shareholders, who receive three shares of the new stock for every one they held of the old. The increase of the capital has come entirely from the profits of the business which in addition has paid dividends of 6 per cent for several years. The officials are C. S. Wilcox, president; Robert Hobson, vice president; Wm. Southam, John Milne, A. E. Carpenter and C. E. Doolittle, directors.

COMPLETE LIST OF TENNESSEE AGENCIES.

A complete roster of the selling agencies and representatives in charge of the Tennessee Coal, Iron & Railroad Co. has been issued. Most of the announcements as to respective district appointments have been noted in THE IRON TRADE REVIEW, but for reference purposes the full official list is given as follows:

General Office, Woodward building, Birmingham; Frank A. Burr, general manager of sales; Willard Wilson, assistant general manager of sales; F. A. Dilworth, assistant general manager of sales.

The offices for the sale of all products other than coal and coke are as follows:

Pittsburg, Carnegie building; A. M. Harper, manager of sales; Frank E. Spencer, assistant manager of sales.

New York, Empire building, 71 Broadway; Charles W. Baker, manager of sales; Charles C. Cluff, assistant manager of sales.

Philadelphia, Pennsylvania building; James B. Bonner, manager of sales.

Cleveland, 1610 Rockefeller building; John R. Scott, manager of sales; R. S. LeBarre, assistant manager of sales.

Chicago, Commercial National Bank building; George Baker, manager of sales; W. J. Totten, assistant manager of sales.

Cincinnati, Union Trust building; John E. Woods, manager of sales.

St. Louis, Chemical building; Wm. B. Weston, manager of sales; Stillman W. Wheelock, assistant manager of sales.

Detroit, Union Trust building; N. D. Carpenter, manager of sales; W. C. Bogue, assistant manager of sales.

Buffalo, 203 Ellicott Square; T. Guilford Smith, manager of sales; Fred C. Deming, assistant manager of sales.

Boston, 125 Milk street; Wilbur Sargent Locke, manager of sales; Wm. Fred Hickey, assistant manager of sales.

St. Paul, Pioneer Press building; George Allen McDougall, manager of sales; Edwin S. Mills, assistant manager of sales.

Portland, Wells-Fargo building; R. R. Hoge, manager of sales.

San Francisco, Crocker building; Richard B. Carr, manager of sales.

Denver, 222 Equitable building; Edw. M. Sparhawk, manager of sales.

New Orleans, 916 Hennon building; James R. Mills Jr., manager of sales.

The offices for the sale of coal and coke are as follows:

Birmingham, Woodward building; J. W. Whatley, manager of sales.

New Orleans, 325 Carondelet street; Frank S. Walshe, manager of sales.

United States Steel Products Export Co., 21 State street, New York, will handle the export business for all products.

CARNEGIE SCHOLARSHIP ANNOUNCEMENT.

The Iron and Steel Institute, through its council, has made the following announcement in regard to the Andrew Carnegie research scholarship:

A research scholarship, or scholarships, of such value as may appear expedient to the council of the Iron and Steel Institute from time to time, founded by Andrew Carnegie (past president), who has presented to the Iron and Steel Institute 89 $1,000 5 per cent debenture bonds for the purpose, will be awarded annually, irrespective of sex or nationality, on the recommendation of the council of the institute. Candidates, who must be under 35 years of age, must apply on a special form before the end of February to the secretary of the institute.

The object of this scheme of scholarships is not to facilitate ordinary collegiate studies, but to enable students who have passed through a college curriculum or have been trained in industrial establishments to conduct researches in the metallurgy of iron and steel and allied subjects, with the view of aiding its advance or its application to industry. There is no restriction as to the place of research which may be selected, whether university, technical school or works, provided it be properly equipped for the prosecution of metallurgical investigations.

The appointment to a scholarship shall be for one year, but the council may, at their discretion, renew the scholarship for a further period, instead of proceeding to a new election. The results of the research shall be communicated to the Iron and Steel Institute in the form of a paper to be submitted to the annual general meeting of members, and if the council consider the paper to be of sufficient merit, the Andrew Carnegie gold medal shall be awarded to its author. Should the paper in any year not be of sufficient merit, the medal will not be awarded in that year.

Local by-laws have been adopted by 13 cities and towns of western Ontario, including Toronto, Hamilton, London, St. Thomas, Brantford and Guelph, authorizing the construction of municipal electric power plants for the distribution of electric energy from Niagara Falls, in connection with the scheme adopted by the Ontario government for the supply of cheap power. It is anticipated that the system will give a great impetus to manufacturing industries in the western section of the province.

Securities Register Steady Gains

Accumulating evidence of the definite improvement in money conditions and of the gradual movement of industrial and business conditions toward a normal basis, has brought increasing strength to the stock market in the week under review. Prices have gradually responded to the more cheerful sentiment and a general advance has been noted. Out of the 12 stocks that showed as the most active market factors of the week, but one registered a net decline for the period, the gains of the others ranging from ¾ to 5⅛ points from the level of the preceding week. In steel stocks the upward bound of Bethlehem steel, amounting to 5½ points in the common and 17 points in the preferred, attracted attention. This display of strength is attributed to the reassuring reports recently received as to the extent and value of some of the ore properties of the company. United States Steel stocks continue to climb, the common shares marketed in the week netting a gain of 2⅞ points and ranking fourth in respect to their advance among the 12 most active stocks of the week on the New York exchange. The rise in Steel preferred was 1¼ points. The report of the sale of the $30,000,000 New York Central trust notes, the proceeds of which are to go to the payment of equipment already purchased, strengthened the stocks of railroad equipment companies. While there has been a considerable increase of outside buying of stocks, through New York commission houses, the sales to realize profits by a powerful speculative party, which has been pursuing systematic operations, have tended to offset this increased activity. There was added to the total cash holdings of the New York associated banks, as the result of their operations during the past week, the sum of $26,185,800, which increased the surplus reserve by $16,551,425. This leaves the banks in possession of $22,635,478 of cash in excess of their legal requirements, as compared to a surplus of $18,460,700 Jan. 19, 1907. The percentage of legal reserve now held against deposits is 27.08, as compared with 25.58 a week ago. The deposits in the banks of the week were increased $38,537,500, and loans were expanded $9,528,000. The total loans now exceed the total deposits by about $36,500,000. The circulation was decreased $1,384,900. The increase in deposits in the week has been due primarily to the forwarding of cash in money centers from country banks. The sales of stock on the New York exchange in the week aggregated 4,889,700 shares against 3,888,740 shares last week and 6,142,300 shares in the corresponding week in 1907. Bond sales exclusive of government bonds amounted to $21,889,000 against $21,154,000 last week and $12,556,000 the corresponding week of 1907.

THE LEADING INDUSTRIAL SECURITIES.

	Clos'ng Quo Jan. 18	Changes in Week	Date 1908 Ann. M't'g	Stock Outstanding	Dividend Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	6½	− ⅛	Sept. 3	19,820,000		.....	.....
Allis-Chalmers pr	19⅛	+ ¼		16,150,000	7 cum	1¾ Q.	Feb., 1904
American Can	5⅛	− ⅛	Feb. 3	41,233,300		.....	.....
Am. Can pr	51¾	+ ⅛		41,233,300	7 cum	1¾ Q.	Oct., 1907
Am. Car and Fdy	32	+ ⅜	June 25	30,000,000		1 Q.	Oct., 1907
Am. Car and Fdy pr	90⅜	+ ⅜		30,000,000	7 n. c.	1¾ Q.	Oct., 1907
American Loc	40½	+3½	Oct. 20	25,000,000	5	1¼ Q.	Nov. 1907
American Loc. pr	92	+5		25,000,000	7 cum	1¾ Q.	Oct.,.1907
American Ship	48	+ ½	Oct. 14	7,000,000	4	1	Dec.. 1907
American Ship pr	91¼	− 6		7,000,000	7 n. c.	1¾ Q.	Oct., 1907
Am. Steel Foundries	6¾	.....	Oct. 6	15,810,000		.....	.....
Am. Steel Foundries pr.	31	+1		17,240,000	6 cum	2½	Aug., 1904
Barney & Smith	65	.....	June 2	2,000,000	4	1 Q.	Sept.,1907
Barney & Smith pr	128¾	.....		2,500,000	8 cum	2 Q.	Sept.,1907
Bethlehem Steel	16	+5½	April 7	14,862,000		.....	.....
Bethlehem Steel pr	40	+17		14,908,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	29½	+ ¾	March 17	45,000,000*	6	1½ S. A.	Aug.,1907
Cambria Iron	44	.....		8,468,000*	4	2 S. A.	Apr.,1907
Chicago Pneumatic Tool	22	.....	Feb. 17	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	22	+2¼	Oct. 19	34,235,500		3¾	Apr..1902
Crucible Steel	6	.....	Oct. 2	24,578,400		.....	.....
Crucible Steel pr	55¾	.....		24,436,500	7 cum	1¾ Q.	Oct., 1907
Empire Steel	8	+3	Feb. 26	2,281,400		.....	.....
Empire Steel pr	50	.....		2,500,000	6 cum	3 S. A.	July, 1906
Fay & Egan	100	.....	Feb. 18	1,000,000	6	1½ Q.	July, 1907
Fay & Egan pr	128¼	.....		1,000,000	7 cum	1¾ Q.	Aug.,1907
General Electric	122	+1¾	May 12	65,167,400	8	2 Q.	Oct.,1907
Harbison-Walker	14½	.....	Jan. 20	18,000,000		½	Oct.,1907
Harbison-Walker pr	69½	.....		9,000,000	6 cum	1½ Q.	Oct.,1907
International Pump	21¼	+5½	June 2	17,787,300		1	Apr.,1905
International Pump pr	69	+1¾		18,335,000	6 cum	1½ Q.	Nov., 1907
Lackawanna Steel	25	+1	March 11	34,971,400		.....	.....
Lake Sup. Corp	4¼	.....	Oct. 7	40,000,000		.....	.....
New York Air Brake	66	.....	June 16	8,012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	130	.....	Feb. 5	8,500,000	6	1½ Q.	Dec., 1907
Niles-Bement-Pond pr	105	.....		2,000,000	6 cum	1½ Q.	Aug.,1907
Otis Elevator Co	23	.....	March 16	6,156,600		1½ S. A.	Oct., 1907
Otis Elevator Co. pr	68	.....		6,449,500	6 n. c.	1½ Q.	Oct., 1907
Penn. Steel	58	.....	May 11	10,750,000		.....	.....
Penn. Steel pr	69	.....		16,500,000	7 n. c.	3½ S. A.	Nov., 1907
Pittsburg Coal Co	10	.....	Feb. 10	28,297,600		.....	Nov., 1906
Pittsburg Coal pr	42¼	.....		27,246,800	7 c.	3½	Apr., 1905
Pressed Stl. Car	22½	+2	Feb. 19	12,500,000		3	Aug., 1904
Pressed Stl. Car pr	75	+3		12,500,000	7 n. c.	1¾ Q.	Nov., 1907
Pullman	158	+5¾	Nov. 11	100,000,000	8	2 Q.	Nov., 1907
Railway Stl. Spring	29¾	+ ¾	March 5	13,500,000	4	2 S. A.	Oct., 1907
Railway Stl. Spring pr	77	.....		13,500,000	7 cum	1¾ Q.	Dec., 1907
Rep. Iron & Steel	18¼	+ ¾	Oct. 21	27,191,000		.....	.....
Rep. Iron & Steel pr	70¾	+1¾		20,416,900	7 cum	1¾ Q.	Oct., 1907
Sloss-Sheffield	41	+2½	March 11	10,000,000	5	1¼ Q.	Dec., 1907
Sloss-Sheffield pr	87½	.....		6,700,000	7 n. c.	1¾ Q.	Oct., 1907
U. S. Pipe & Fdy	19⅜	− ⅝	June 24	12,500,000	4	1 Q.	Dec., 1907
U. S. Pipe & Fdy. pr	67	+7		12,500,000	7 n. c.	1¾ Q.	Dec., 1907
U. S. Steel	31	+2⅞	April 20	508,302,500	2 n. c.	½ Q.	Dec., 1907
U. S. Steel pr	95	+1⅛		360,281,100	7 cum	1¾ Q.	Nov., 1907
U. S. Steel 5's	88⅞	+ ⅞		463,798 000	5	5 A.	.....
Va. Iron, Coal & Coke	51¼	+2¼	Nov. 17	9,073,680		.....	.....
Westinghouse Elec	52	+6½	June 24	24 998,700*	10	2½ Q.	Oct., 1907
Westinghouse Air Brake	133	.....	Oct. 6	11,000,000*		5 Q.	Oct., 1907

Par value of shares, $100, except those starred (*), $50.

Copper Stocks.

Boston. — Butte Coalition, closed 20⅜, net gain in week 4⅝; Calumet & Arizona, closed 114, net gain 7½; Calumet & Hecla Mining closed 670, net gain 45; North Butte Mining, closed 53¼, net gain 7¾; Quincy Mining, closed 92, net gain 5.

New York.—Amalgamated Copper, closed 52½, net gain 1¾.

Financial Notes.

Recent dividend declarations include the following: International Steam Pump Co., regular quarterly dividend of 1½ per cent on its preferred stock, payable Jan. 20; Cambria Steel Co., regular semi-annual dividend of 1½ per cent, payable Feb. 15; United States Cast Iron Pipe & Foundry Co., regular quarterly dividend of 1¾ per cent on its preferred stock, payable March 2. Action in regard to dividend on the common stock of the latter company was deferred. The common stock of the company has been paid a dividend of 1 per cent since Dec. 1, 1905.

NEWS FROM MANY INDUSTRIES

New Buyers:—

The Engineering & Supply Co., Milwaukee, capital $10,000, has been incorporated by E. B. Arnold, C. H. Barker and J. H. Sprecher.

The Multi-Stage Rotary Engine Co., capital $50,000, with B. F. Hoffman, E. A. Pially and L. G. Hoffman, of Buffalo, as directors, has been incorporated at Albany, N. Y.

Louis Koss, George R. Thomas and Edward H. Resener have chartered the Capital Machine Co., Indianapolis, with a capital of $50,000.

C. H. Seaman, Frank J. Schuske and W. H. Seaman have organized the Seaman & Schuske Metal Works Co., St. Joseph, Mo., with a capital of $2,000.

The Monitor Sad Iron Co., Big Prairie, O., has been incorporated with a capital of $50,000 by J. C. Lake, R. R. Critchfield, B. A. Lake, Harvey Emmons and A. V. Rush.

Henry H. Hoffman, Max R. Hoffman and Fannie H. Hoffman have organized the Superior Stove Works, 115 Dearborn street, Chicago, with a capital of $10,000 to manufacture stoves and castings.

The Osborne & Sexton Machinery Co., Columbus, O., has been chartered with an authorized capital of $100,000 by Don M. Osborne, James J. Sexton, John O'Brien, William P. Sexton and Agnes J. Osborne.

The Rathbun-Jones Engineering Co., Toledo, has filed articles of incorporation with a capital of $240,000. Those interested are: George J. Rathbun, H. W. Ashley, A. L. Smith and George H. Beckwith.

The Cregier Signal Co., 79 Clark street, Chicago, capital $50,000, has been formed by Robert N. Stites, N. Banks Cregier and John A. Brown. The company will manufacture electrical and mechanical machinery.

The Ajax Specialty Co., Boston, mechanical appliances, has filed articles of incorporation with a capital of $1,000. The officers of the company are: President, treasurer and clerk, Charles Smith, Brookline.

The Keyes Electrical Co., Buffalo, has filed articles of incorporation with a capital of $12,000. S. G. Keyes, J. G. Keyes and Jennie E. Keyes, all of Gowanda, N. Y., are among those interested in the new enterprise.

The Northern Foundry & Machine Co., Ltd., of Sault Ste. Marie, Ont., has been incorporated with an authorized capital of $50,000, the provisional directors being James N. Kendall, John N. Neil, Peter Young and Albert U. Smeader.

The L. L. Patterson Co., Syracuse, N. Y., has been incorporated for $25,000 by Henry I. Hetherington, H. A. Munro and Emma E. Munro. It will carry on a machinery business.

The Bushing Faucet & Valve Co., Brooklyn, N. Y., has been incorporated with $100,000 capitalization. The directors include George Bibby, 677 Atlantic avenue, John McNeely, 768 Bergen street, and Marvin Hudson, 99 South Elliott place.

The Brown-Binnian Co., Boston, machinery, has been incorporated with a capital of $2,500. The officers of the company are: President, William H. Binnian, Boston; treasurer, Charles A. Brown, Salem; and clerk, George Cox Jr., Malden.

The Hannan-Finton Co., Springfield, Mass., machinery, has been formed with an authorized capitalization of $35,000. The officers of the company are: President, Thomas J. Finton; treasurer, Hugh Hannan; clerk, Mabel L. Hannan, all of the address given above.

The Houston Armature Works, Houston, Tex., has been chartered to manufacture motors, dynamos and electrical appliances. The capital stock of the company is $10,000, and the incorporators are: F. E. Ward, L. R. Ward and E. T. Barden.

The Rotary Composing Machine Co., New York, has been chartered to manufacture printing machinery. Among those interested in the new enterprise are: William G. McGrath, 18 Wall street; William C. Evans, 116 Produce Exchange; and William H. Webb, 41 Park Row, all of New York.

Articles of incorporation have been filed by the J. B. C. Bartlett Iron Works, New York, to manufacture structural and ornamental iron work. The capital stock of the company is $5,000, and the incorporators are: John B. C. Bartlett, Hoboken, N. J.; Homer N. Bartlett, 272 Manhattan avenue, New York; and Alphonse J. Fritsch, West Hoboken, N. J.

New Construction:—

The Nampa Iron Works, Ltd., Nampa, Idaho, is erecting a plant for general foundry work. At the present time a building 35 x 100 feet is being erected for service as a pattern shop, and a brick foundry 35 x 55 feet is also about to be commenced. Later a machine shop will be erected.

The Southern Car Mfg. & Supply Co., Chattanooga, Tenn., is progressing with the erection of its new plant at Chattanooga, Tenn. The excavation work has been completed, and the buildings are now in the early stages of erection.

Bell Bros., Pittsburg, dealers in iron and steel scrap and metals, have completed and equipped a modern plant at Twenty-seventh street and Allegheny Valley railroad, where it will be located after Feb. 1. The new plant is thoroughly up-to-date and the machinery is operated by electricity.

The South Halsted Iron Works, 2611 Halsted street, Chicago, is taking figures on the contracts for the construction of a steel erecting shop to be built at Twenty-sixth street and Emerald avenue. The plant will consist of four buildings, one story, 125 x 287 feet, of brick and steel construction.

The Monarch Foundry Co., Stockton, Cal., has completed the construction of a new plant consisting of a foundry 65 x 98 feet, a two-story pattern shop and storage room and other buildings. The Monarch company is occupying its new location and the first heat proved very successful.

The Olympic Foundry Co., Tacoma, Wash., has been granted a municipal permit to erect a new foundry and machine shop in that city. The new plant will be 50 x 140 feet in size, two story, and will have about 14,000 square feet of floor space. The purchase by railroads for terminal purposes, of the land upon which the company is at present located, has made the company obliged to take a new location.

General Industrial Notes:—

At the annual meeting of the Midvale Steel Co., Philadelphia, the old officers were re-elected.

The charcoal iron furnace of the Lake Superior Iron & Chemical Co., at Manistique, Mich., was banked Jan. 20 for an indefinite period.

The Ferry Cap & Set Screw Co., Cleveland, has increased its capital stock from $50,000 to $100,000. The increased capital will be employed in caring for the growing business.

The Elmwood Casting Co., Cincinnati, ran its first heat in its new plant in that city recently. The operation

was very successful. The company will manufacture iron castings for custom work.

The Illinois Light & Fuel Co., Rockford, Ill., manufacturer of gas and gasoline engines, has been subjected to bankruptcy proceedings and N. P. Nelson, of Rockford, has been named as receiver.

The Fuller Mfg. Co., Danvers, Mass., recently incorporated, will manufacture Fuller's garden tools. The company is preparing for a heavy fall business, and has a plant fully equipped for its present needs.

The Clare Iron Co., Portsmouth, O., has elected the following officers: E. H. Clare, president; J. R. Clare, vice president, and E. S. Clare, secretary. The officers with Thomas McConnell and W. V. Simmons form the board of directors.

At a meeting of the stockholders of the Keyless Lock Co., Dayton, O., the following directors were elected: G. F. Deal, L. C. Walker, C. A. Funkhouser, Charles A. Haskett, F. M. Deardorff, Joshua Zweisel and T. A. Logler Jr.

At the annual meeting of the stockholders of the Burt Mfg. Co., Akron, O., all the old officers were re-elected. Report of business shows an increase of about 25 per cent in 1907. The company's output consists of oil filters, exhaust heads and ventilators.

The Globe Safe Co. is a new company manufacturing safes at Kansas City, Kas. The company has acquired an old electric light plant in which it has installed a complement of machinery for foundry and machine shop work. J. H. Bodley and J. U. Bodley are interested in the enterprise.

The company name of the Schreiber & Conchar Mfg. Co., Dubuque, Ia., has been changed to that of the Loetscher-Ryan Mfg. Co. The company will continue the manufacture of sad irons, registers and hardware specialties under the same management it has had for the past two years.

The Straubel Machine Co., Green Bay, Wis., marine gasoline engine manufacturer, which was recently incorporated is an established business which has been conducted for the past five years as a partnership by three brothers, L. A., E. F. and Edward Straubel. No changes in the plans of the company are contemplated.

Fraustin Prinz, of the Prinz & Rau Mfg. Co., Milwaukee, and C. F. Hafe, of the A. O. Smith Co., have purchased seven lots and the big brick manufactory on Clinton street, Milwaukee, once owned by the Federal Mfg. Co., and once a part of the bicycle trust. A mortgage of $77,000 was given by the Prinz & Rau Mfg. Co. on the property.

The extensive warehouses being erected by the Carnegie Steel Co. at Waverly, N. J., suburban to Newark and New York, have practically reached completion and the taking in of stock has been begun. The equipment of the warehouses has been entirely finished, with the exception that a few hoists are yet to be installed, chiefly for experimental purposes.

The P. H. Standish Chain & Mfg. Co., Cleveland, recently organized, will manufacture chain-making machinery and sufficient chains for demonstrating the working of the equipment it offers. For the present, the company is considering the building of the machines under contract until it has arranged a shop of its own. P. H. Standish, 1690 Crawford road, Cleveland, is interested in the company.

At the annual meeting of the stockholders of the Dempster Mill Mfg. Co., Beatrice, Neb., W. Z. Warner was elected to fill the vacancy caused by the death of the late Charles M. Hemler. The other directors were re-elected as follows: C. B. Dempster, J. W. Burgess, H. W. Schafer, H. L. Dempster, R. H. Yale and W. A. Waddington. The company enjoyed a very satisfactory year in 1907, the increase in sales over 1906 amounting to more than $100,000.

At the annual meeting of the Peerless Motor Co., Lansing, Mich., the election of the board of directors resulted in the choice of the following: Fred Thoman, John Toolan and Robert Langanbacher. The four officers elected are: President, Lawrence Price; vice president, Jacob Gansley; treasurer, L. L. Sattler; secretary and manager, A. S. Bennett. The company has completed an addition to its plant which will greatly increase its capacity. The past year has been a successful one and there is a great deal of business in sight, particularly in marine gas engines.

The W. H. Linton Co., Ogdensburg, N. Y., manufacturer of brass and steel specialties, has changed its name to the Newell Mfg. Co. E. A. Newell, president of the W. H. Linton Co., continues as president of the Newell Mfg Co. Allan Newell, who has been elected treasurer of the Newell company, will continue as manager of the Ogdensburg plant, and Joseph E. Fell will be superintendent as in the past. Its expanding Canadian trade has necessitated the establishment by the company of enlarged manufacturing facilities in that country, and a new plant under the name of the Newell Mfg. Co. is now being arranged at Prescott, Ont. E. A. Newell will be president, and Albert P. Newell, treasurer and manager of the Canadian branch.

Trade Notes:—

The Jones Machine Co., Chattanooga, Tenn., is arranging its catalog for 1908, and would like to receive copies of various catalogs from manufacturers in its line.

The Dayton Malleable Iron Co., Dayton, O., has added to its foundry equipment a new steel runway supporting a three-motor electric traveling crane of 35-foot span. Both crane and runway were furnished by the National Engineering Works, Detroit, Mich.

C. W. Hill & Co., 201 Woodward building, Birmingham, Ala., have been named special correspondents of the southern states for Pawling & Harnischfeger, Milwaukee, builders of traveling cranes and horizontal drilling and boring machines.

Fires.—

The plant of the Holland Launch & Engine Co., Holland, Mich., sustained a severe loss by fire recently.

The machine shop and other auxiliary buildings of the Whitley Reduction Co., Whitley, N. C., were destroyed by fire recently, causing a loss of upwards of $10,000.

A portion of the round house together with the machine shops and oil house of the Lake Shore & Michigan Southern railroad, at Elkhart, Ind., were heavily damaged by fire recently, entailing a loss of about $100,000.

Plan Distribution.—The plan of making a distribution on the preferred stock of the American Steel Foundries Co., as just announced, proposes in addition to the original plan to pay the accumulated back dividends in interest-bearing scrip, a cash distribution of $3 a share and the elimination of the present common and cumulative preferred stock by the substitution of an issue of $17,184,000 capital stock. The new stock is to be exchanged for the cumulative preferred at the rate of 77 for each 100 outstanding, and for the common at the rate of 25 for each 100. The scrip is to be paid to holders of the preferred stock of $20 on each $100, will bear 4 per cent interest and will be dated Feb. 1, being payable as to principal in 15 years from date. A special meeting of the stockholders has been called for Feb. 8 to consider the plan.

TRADE PUBLICATIONS.

VISES.—The Fulton Machine & Vise Co., Lowville, N. Y. Catalog E. The many points of superiority claimed for the patent vises manufactured by the above company are shown in this booklet, price lists of the various types and also of their extra parts are given and sectional views and other illustrations of the "F. & R." universal vise, universal double swivel vise, coachmaker's double swivel vise, star parallel machinist's vise, star woodworkers' vise, combination pipe vise, etc., are also included in the catalog.

STEAM BOILERS.—The S. Freeman & Sons Mfg. Co., Racine, Wis. Catalog No. 30. 112 pages. Illustrations, descriptions, specifications and tables of dimensions of standard horizontal return tubular boilers, portable or locomotive fire-box boilers, vertical tubular boilers, return flue corrugated furnace boilers, greenhouse boilers, tubular hot-water heating boilers and numerous other types. The company also manufactures all kinds of sheet and steel plate work, steel tanks, self-supporting steel chimneys, smoke connections, water works standpipes, waterworks mains, etc. Inserted in the catalog are folders containing illustrations of the Bonus-Freeman water tube boiler and descriptions and illustrations of "Continental boilers" with Morrison corrugated furnaces, also a circular describing a new attachment—Cahall's swinging manhead—and several other inserts containing testimonials of satisfaction from users of the Freeman boilers.

LIFTING MAGNETS.—The Electric Controller & Supply Co., Cleveland. 32 pages. A large and handsome catalog bound in heavy tan paper with the title, "Lifting Magnets," embossed and the inside printed on coated paper in two colors, olive and black. This catalog is illustrative of the various types of lifting magnets and their uses. The type S magnet, extensively used for loading charging boxes for open-hearth furnaces, is thoroughly described in the catalog and the illustrations show a wide variety of material which can be lifted by this magnet, including light and heavy melting stock, rail butts and billets, fine turnings, heavy ingots, castings, skull-cracker balls, etc. The other types include type F, No. 4 type R magnet, etc. A partial list of purchasers is given on the last three pages.

PORTLAND CEMENT.—The Universal Portland Cement Co., Chicago, is issuing a pamphlet containing illustrations of buildings, residences, sidewalks, concrete walls, locks, etc., in the construction of which large amounts of portland cement were used.

ENGINES.—The Murray Iron Works Co., Burlington, Ia. 22-page catalog illustrative and descriptive of the standard Murray Corliss engine, the Tangye frame Corliss engine and the rolling mill type Corliss engine; also double-ported cylinder and valves, governors, etc.

PNEUMATIC TOOLS. — The Cleveland Pneumatic Tool Co., Cleveland. Catalog G. 32 pages. 6 x 9 inches. The tools illustrated and described include inside latch riveting hammers, outside latch riveting hammers, with instructions as to use, chipping, caulking and beading hammers, with tables of capacities and other useful information, stone and scaling hammers, reversible and non-reversible drills, with tables of capacities of each type, short angle gears, long angle gears, lightning hose clamp tools, oscillating valve grinders, rotary breast drills, the Gunnel pneumatic rivet forge, etc.

ELECTRIC APPLIANCES.—The General Electric Co., Schenectady, N. Y., is issuing bulletins 4550, 4551 and 4554. Bulletin 4550, 36 pages, discusses a number of well-known lines of circuit breakers. Type C, form G circuit breaker is designed for a small, reliable, automatic, protective device for direct and alternating current systems at a moderate price; type C, form P, is particularly adapted for use on railway and power systems and is made up to 12,000 amperes capacity, while type C, form K, especially designed for heavy service, is particularly well suited for railway work and is made in capacities up to 10,000 amperes. The bulletin also contains descriptions of auxiliary switches, automatic tripping, devices, etc., to be used with the circuit breaker, and gives complete data as to capacities, prices and dimensions of the devices shown. Bulletin 4551 deals with the Thompson horizontal edgewise instruments for switchboard service, including ammeters, voltmeters, single-phase wattmeters, polyphase wattmeters, frequency indicators and power factor indicators, illustrating and describing the various types, giving dimension sketches and a complete set of full-sized scales, all the instruments being of uniform size. The horizontal edgewise design has been adopted for the majority of high grade work. While primarily designed for alternating current service, the voltmeters, ammeters and wattmeters can be used with good results on direct current. Bulletin 4554 presents information on portable instruments, which are strong and light and of small size, so that several instruments may be carried with ease. Catalog numbers, capacities and list prices are given in the bulletin and full sized sample scales of the various instruments reproduced.

CENTRIFUGAL PUMPS.—The American Well Works, Aurora, Ill. Bulletin 104. 64 pages. The centrifugal pumps which are described and illustrated in this catalog are built from new patterns; standard pumps are made in quantities and from templets and jigs, insuring low cost and the proper fit for repairs when they become necessary. The many advantages of these pumps are pointed out, directions for installation are given, and testimonials of perfect satisfaction by users are presented, followed by speed tables of the various types, tables of dimensions and of theoretical horsepower required to raise water to different heights. "American" pumps are adapted to many different purposes, including irrigation, sewerage, reclamation, water supply, wrecking, excavating, etc. The various types are illustrated and described in detail.

SUCTION GAS POWER PLANTS.—The R. D. Wood & Co., Philadelphia. Catalog. 12 pages. This catalog claims to show the superiority of the suction gas plant over other types of apparatus, inasmuch as no boilers or chimneys are required, the cost of power generation is low and another important feature is the fact that smoke is eliminated. Tables showing results of tests of installations are presented, demonstrating the adaptability and great economy of gas producer pumping plants.

PULVERIZERS.—The Lehigh Car Wheel & Axle Works, Fullerton, Pa., is sending out an unusually large and handsome catalog bound in heavy tan paper, having the title printed in gold letters with an illustration of the Fuller-Lehigh pulverizer on the cover surrounded by a gold wreath. The catalog contains 45 pages with numerous illustrations and descriptions of the Lehigh-Fuller pulverizer mill. The first pages are devoted to a sketch of the development of the Portland cement industry, which is followed by a complete description of the Fuller-Lehigh pulverizer mill and its operation; a list of its parts and sectional views of the enlarged types of mills, termed "preliminary" and "finishing" mills, and illustrations of installations at various places are presented, followed by testimonials of satisfaction on the part of users.

FOREIGN TRADE OPPORTUNITIES.

(These inquiries from prospective foreign purchasers are furnished by American consuls to the Government Bureau of Manufactures, Department of Commerce and Labor. Those in which the addresses are omitted are on file at the Bureau of Manufactures, Washington, D. C. In applying for addresses refer to the file number.)

No. 1712. Farm implements, machines, furnishings, etc.—An inquirer from Europe would like to obtain the names of American manufacturers of the following goods: Gasoline and steam engines, threshers, plows, seeders, potato diggers, incubators, heating and ventilating devices for greenhouses, farm wagons for different purposes, fruit evaporators, carpenters' and blacksmiths' tools, cook stoves, and bakers.

No. 1713. Representation in the east.—The bureau of manufactures is in receipt of a letter from a prominent civil engineer in which he states that a well-known New York firm of engineers and contractors desires him to represent it in the east, the territory to be covered being Turkey, the Balkan States, and the Levant. The idea of this firm is to interest two or three other manufacturers in joining it in supporting a joint agency there. This man writes that he has been abroad heretofore for seven years, representing American interests in India, Australia, Turkey, the Balkan States, Greece, Italy, Central Europe, and England, and will be glad to handle any non-conflicting lines of railway supplies, machinery of all kinds, supplies for the various government departments, locomotives, cars, contractors' plants, etc.

No. 1688. Metal Goods.—An American consular officer in a European city furnishes a list of dealers in all kinds of metal goods, such as sheet iron, tubes, bolts, rivets, implements, shelf hardware, axles, ship's hardware, and all classes of iron and steel, etc. The consul states that these firms are in the market for such goods, and advises that offers be made to them.

No. 1695. Builders' Hardware, Stoves, Etc.—An American consul in the Orient writes that foreign styles in building the exteriors and very often the interiors of houses have been largely adopted. He states that there is, therefore, a growing market for foreign builders' hardware, hinges, bolts, locks, latches, etc. He further states that corrugated iron is widely used there for roofing and for making temporary buildings. Good and inexpensive stoves should also sell well, and kerosene oil stoves, if properly introduced, would find a ready sale on account of their convenience. A list of hardware dealers at the place in question is furnished, and the consul says that much can be done with catalogs and price lists in this region, as the number of persons who can read English is large.

No. 1644. Belting and lubricating oil.—One of the American consuls in the Levant furnishes the name of an engineer who is interested in leather belting, woven belting, and lubricating oil for petroleum engines C. i. f. prices and samples are solicited.

No. 1653. Railway construction.—Contracts will be awarded shortly by the Peruvian government for the construction of new railways. Address Minister of Instruction, Finance and Public Works, Lima, Peru.

No. 1637. Bridge.—One of the American consuls in the Mediterranean region writes that a new bridge is to be built and that the proper official requested him to bring the project to the attention of American bridge constructors. A blue print of the river at the point where it is proposed to build the bridge was prepared by the municipal engineer and may be had of the bureau of manufactures. The consul particularly requests that the French language be employed in correspondence.

No. 1638. Farm machinery and tools.—An American consul in South America states that it is the intention of the government of the country in which he is located to establish a farm for the study of better methods of cultivating and curing tobacco, cotton, and other agricultural products natural to the country. Manufacturers of implements and machinery used in the cultivating and treatment of such products should communicate with the officials whom the consul names, with a view of aiding in the development of this experimental work which in the end, without doubt, as the consul says, would lead to the use of their machinery and tools in that country.